TECHNOLOGY DEPT

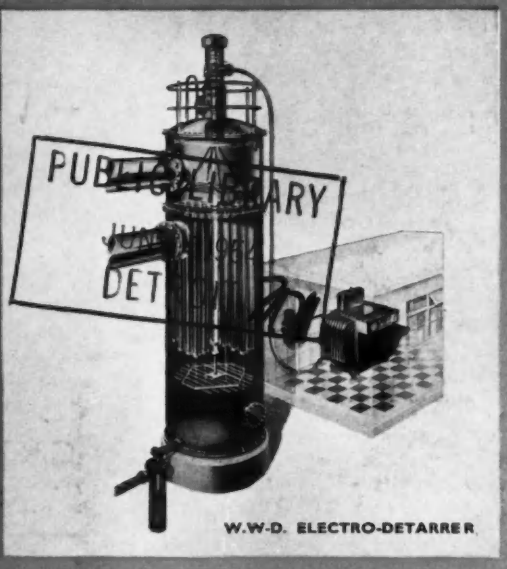
Gas Journal

VOL. 278 106TH YEAR. LONDON, JUNE 2, 1954 NO. 4748. PRICE 1/3

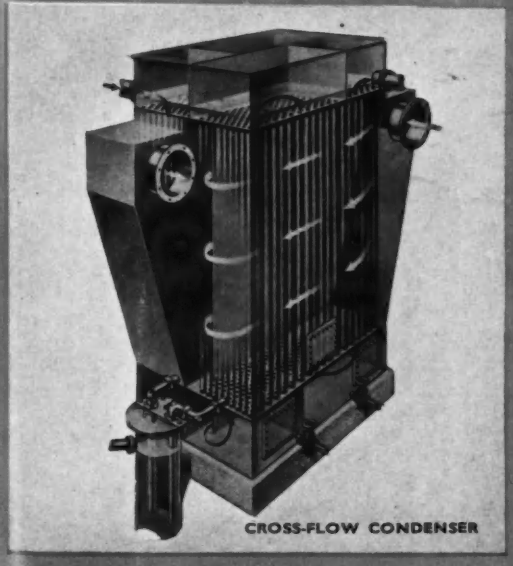
WHESSOE

TREATMENT PLANT FOR THE GAS & COKE OVEN INDUSTRIES

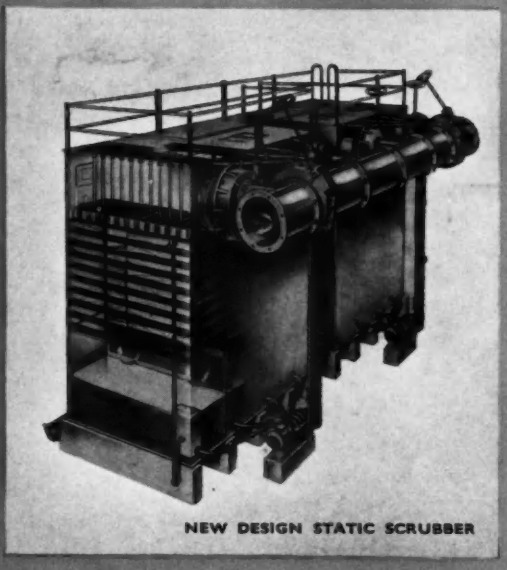
Whessoe design and build COMPLETE ANCILLARY PLANT for the treatment of all fuel gases. Many of these complete purification plants embody CONDENSERS, W.W-D. ELECTRO-DETARRERS and STATIC SCRUBBERS the features of which are illustrated on this page.



W.W-D. ELECTRO-DETARRER



CROSS-FLOW CONDENSER

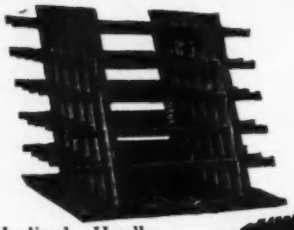


NEW DESIGN STATIC SCRUBBER

WHESSOE LIMITED

DARLINGTON • ENGLAND

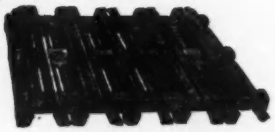
LONDON OFFICE 25 VICTORIA STREET, S.W.1.



Inclined Hurdles (Light or Heavy Type) with Bottom Flat Grids.

Scrubber Grids.

Open Space Grids or Upper Tiers.



Patent Double-Barred Grids.

Flat Grids for Bottom Tiers (Closed Ends).

CROSSLEY GRIDS

for

PURIFIERS, SCRUBBERS AND WASHERS

Embody the latest improvements—are of the very best quality—and are in use extensively throughout the Kingdom

Send your enquiries for any kind of Grids to:—

CROSSLEY BROTHERS,
GRID WORKS, BISPHAM, LANCS.

Telephone: BLACKPOOL 51005 (2 lines). *Telegrams:* "CROSSLEY, BISPHAM."

REPRESENTATIVE: Mr. W. E. Settle, 66, Bridgewater Road, Bradford, Yorks.

The

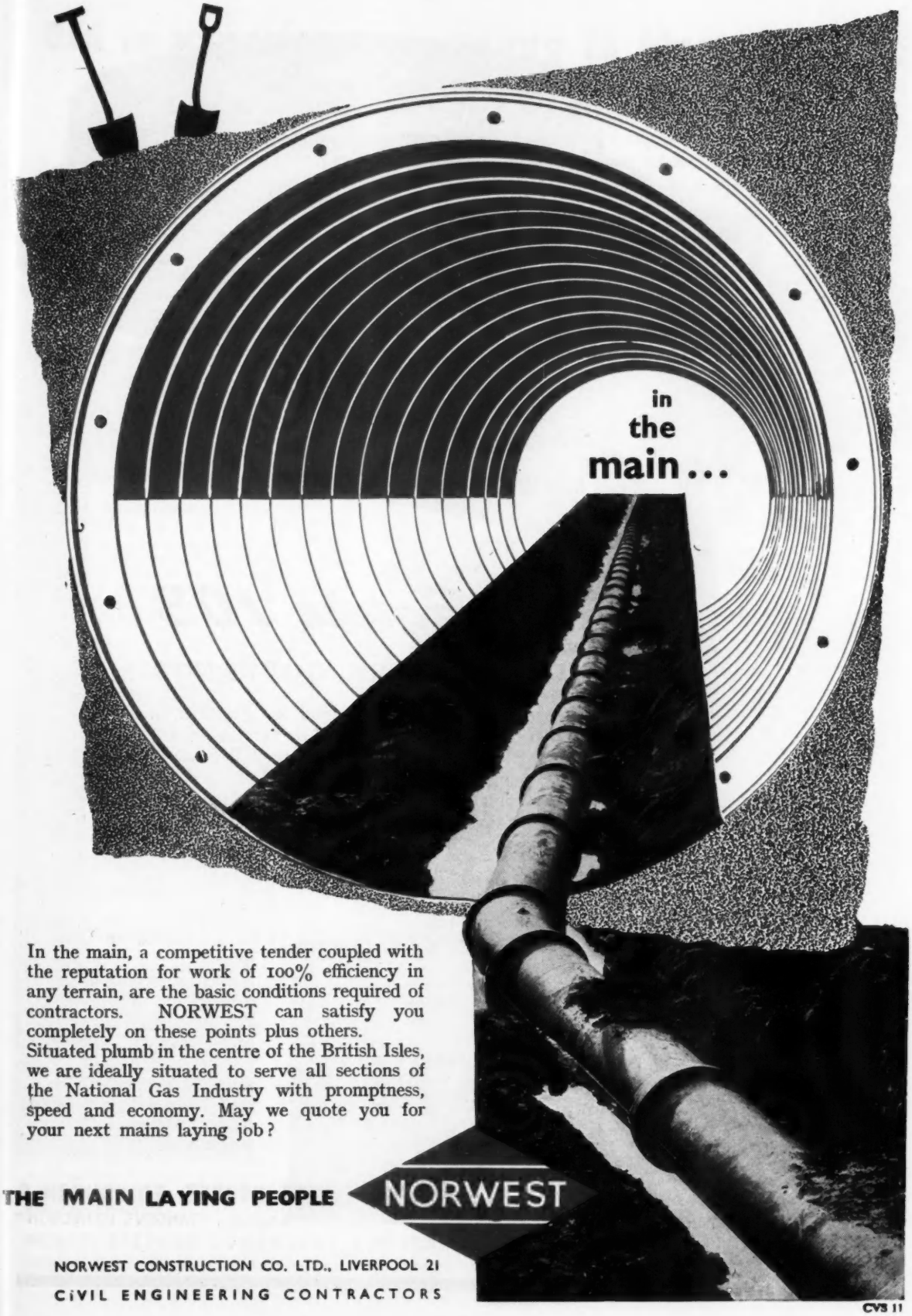
DONKIN HANSON AUTO-PILOT GOVERNOR

FOR USE WITH STATION GOVERNORS

THIS PILOT GOVERNOR IS OPERATED BY AN EIGHT-DAY CLOCK, AND CHANGES THE PRESSURE TO MEET PEAK LOADS, ACCORDING TO REQUIREMENTS. A DIFFERENT LINE CAN BE GIVEN FOR EACH DAY OF THE WEEK IF REQUIRED.

The BRYAN DONKIN CO LTD · Chesterfield

LONDON · MANCHESTER MEMBERS OF THE SOCIETY OF BRITISH GAS INDUSTRIES



In the main, a competitive tender coupled with the reputation for work of 100% efficiency in any terrain, are the basic conditions required of contractors. NORWEST can satisfy you completely on these points plus others. Situated plumb in the centre of the British Isles, we are ideally situated to serve all sections of the National Gas Industry with promptness, speed and economy. May we quote you for your next mains laying job?

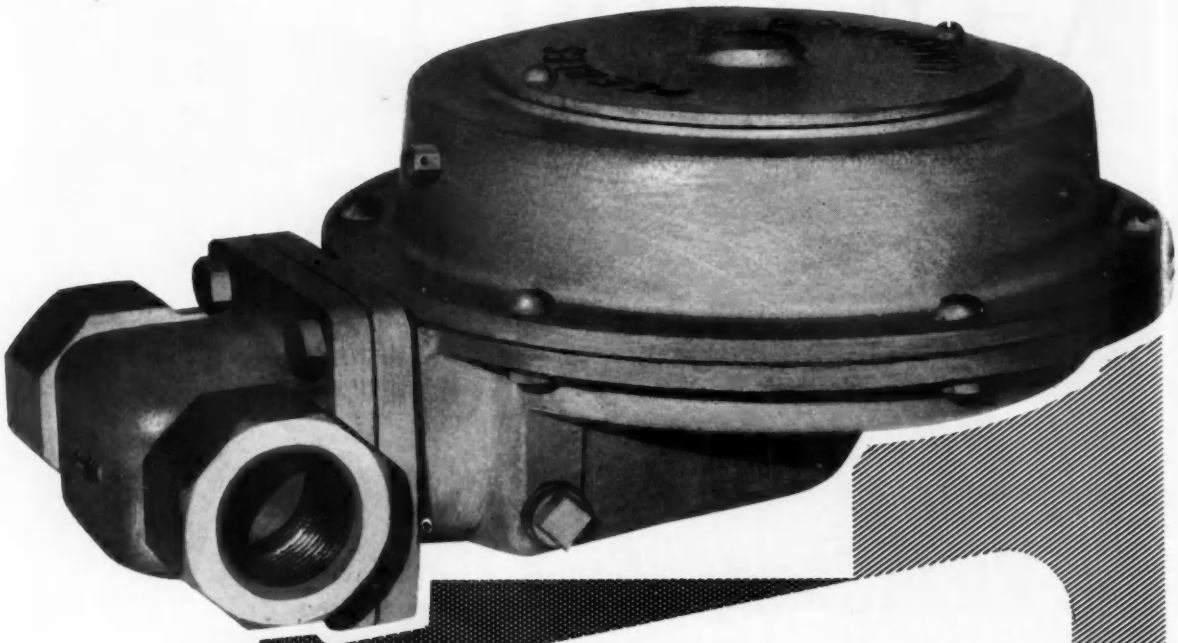
THE MAIN LAYING PEOPLE NORWEST

NORWEST CONSTRUCTION CO. LTD., LIVERPOOL 21

CIVIL ENGINEERING CONTRACTORS

CVS 11

A



The Figure 103

HIGH PRESSURE GOVERNOR

This governor may be arranged for gas flow in any direction, either horizontal or vertical, and it is suitable for inlet pressures up to 150 lbs. per square inch, with the outlet pressure in accordance with customers' requirements. Weight loading or spring loading may be employed according to pressure conditions.

Peebles

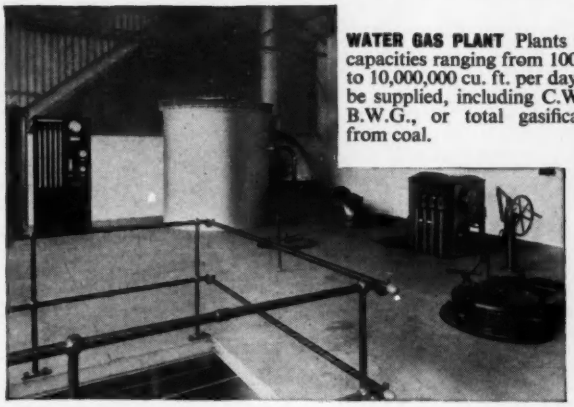
& CO. LTD.

TAY WORKS, WEST BOWLING GREEN STREET, EDINBURGH 6

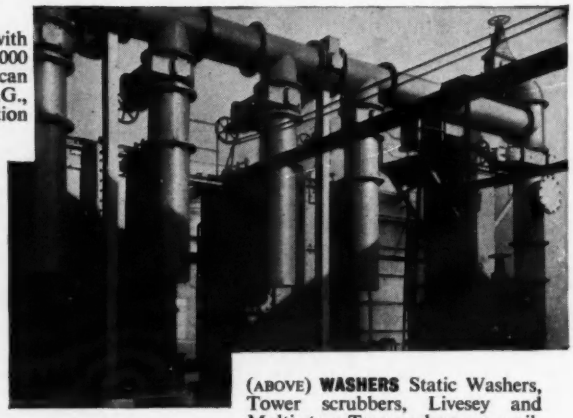
Telephone : LEITH 36544 & 35069 Telegrams : "TANGENT, EDINBURGH"

Old in experience . . . young in ideas 1810-1954

The Balfour Organisation can offer to the Gas Industry a source for the planning, manufacture and installation of a complete range of equipment. Production, purification, the recovery of by-products — whatever the problem, a wealth of past experience and present ability is at your service.



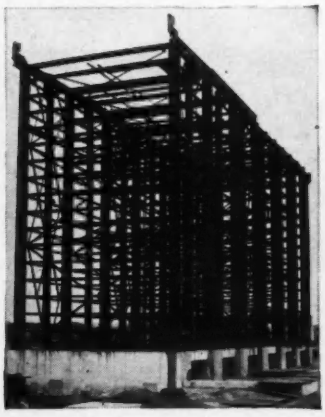
WATER GAS PLANT Plants with capacities ranging from 100,000 to 10,000,000 cu. ft. per day can be supplied, including C.W.G., B.W.G., or total gasification from coal.



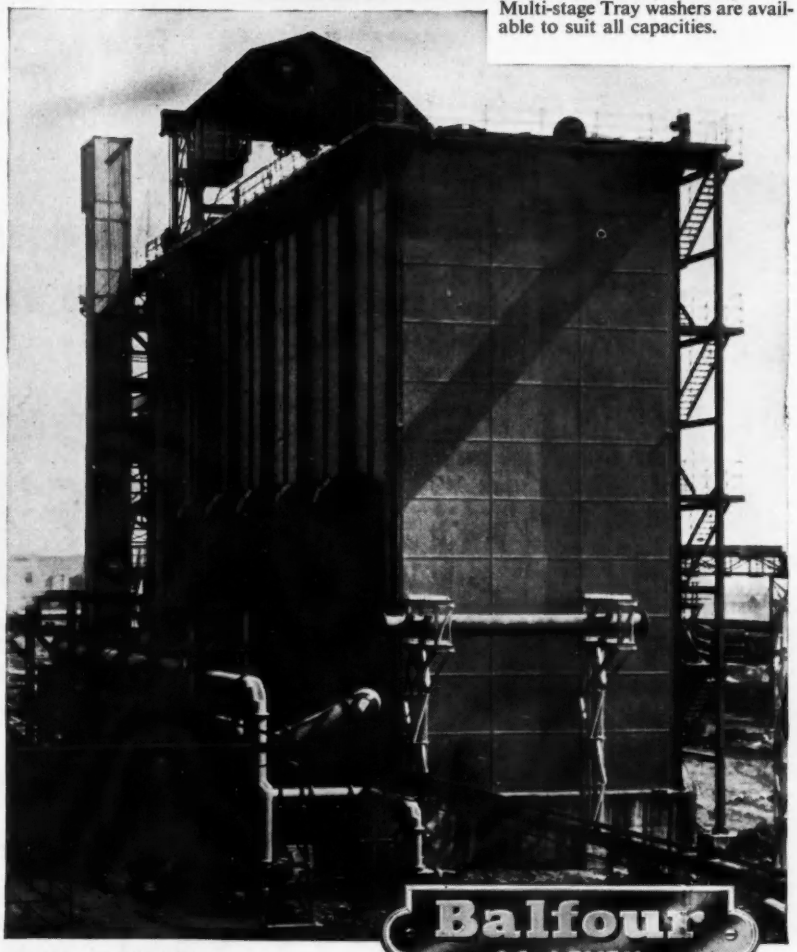
(ABOVE) **WASHERS** Static Washers, Tower scrubbers, Livesey and Multi-stage Tray washers are available to suit all capacities.

BALFOUR-LECOCQ TOWER BOX PURIFIERS

(BELOW) An early stage of erection of the plant at the Southall Works of the North Thames Gas Board. Capacity 7,500,000 cubic feet per day. (*Photograph by courtesy of the North Thames Gas Board*).



(RIGHT) The first installation put into operation at the Car House Works, Rotherham at the East Midlands Gas Board. Capacity 10,000,000 cubic feet of gas per day. To be extended to 20,000,000 cubic feet per day. (*Photograph by courtesy of the East Midlands Gas Board*).



ALSO: Gasholders (*Spiral or Frame Guided, Rivetted or Welded*). Purifiers (*Cast Iron or Mild Steel*). Condensers (*Vertical Multipass-Horizontal Tubed and Supervertical*). Electro-Detarrers. Complete Gas treatment Streams. By-product Plant etc.

Balfour OF LEVEN

HENRY BALFOUR & COMPANY LIMITED

Artillery House, Westminster, London, and Durie Foundry, Leven, Fife

MEMBER OF THE BALFOUR GROUP OF COMPANIES

There's 4 MILLION FEET OF PROOF that FRANCOIS BORED PILES GIVE GREATER STRENGTH & STABILITY to foundations of every type.

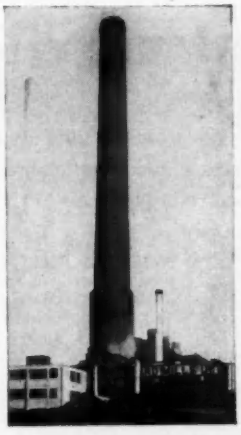
From the investigation of the site to the completion of the job, the Cementation Co. Ltd. provide a complete world-wide service on foundations and underpinning, which is unrivalled for experience, facilities and resources.

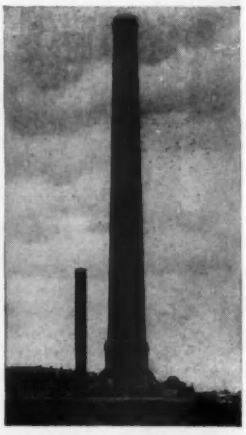
Time has proved, over and over again that concrete piles and cementation methods not only give the greatest strength and stability to many types of foundation, but are often the only solution in certain difficult conditions.

In addition there is no harmful vibration, distortion or excessive noise during construction.

The successful completion of over 4 million feet of Bored Piling during the last fifteen years is an achievement which speaks for itself.

Left : Trial borings for reconstruction of Coventry Cathedral.





Two of the largest chimneys in the British Isles; on foundations of Francois Concrete Piles (left) and Francois Cementation Piles (Right)

Write for your copy of our new booklet about Bored Piling.

The CEMENTATION COMPANY LIMITED

London Office : 39, Victoria St., S.W.1. Tel. ABBey 5726

BENTLEY WORKS, DONCASTER Telephone 54177-8-9

SENSITIVE IN ALL CONDITIONS!

JEAVONS

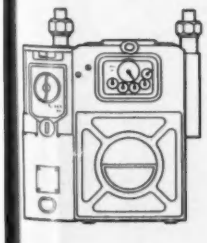
CRAWFORD DISTRICT GOVERNORS...

- **Absolute accuracy of controlled pressure under the most adverse conditions of inlet pressure fluctuations.**
- **Designed for accessibility and ease of maintenance.**
- **Generous diaphragm areas throughout the range of sizes.**

Write for brochure 49/4/CS.

JEAVONS ENGINEERING Co.,

TIPTON · STAFFS · (PROPS: E. E JEAVONS & Co. Ltd) · 'Phone: TIPTON 2161 'Grams: · PIPELINES ' TIPTON.



In the production of meters, as in that of all Willey equipment, precision is the keynote. From the selection of materials to the final testing, high standards are set for man and machine alike.

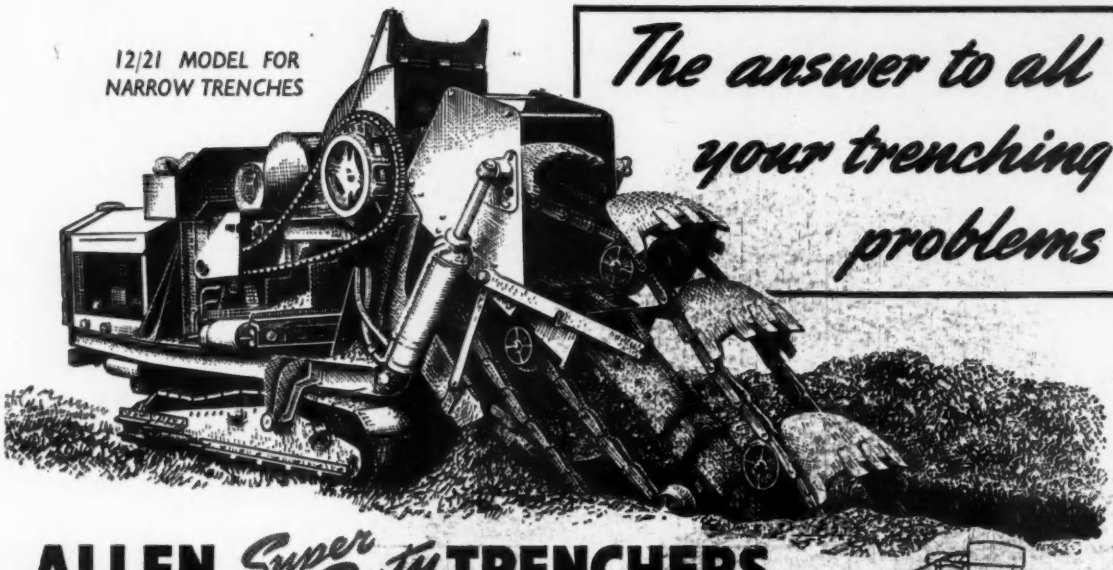
PRECISION FIRST & LAST

WILLEY

WILLEY & CO. LTD. EXETER · LONDON · MANCHESTER · LEICESTER · DARLINGTON

Associated Company of United Gas Industries Ltd

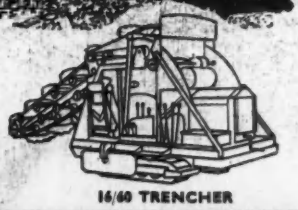
12/21 MODEL FOR NARROW TRENCHES



The answer to all your trenching problems

ALLEN *Super Duty* TRENCHERS

For narrow trenches we supply the 12/21 model, and for wide trenches the 16/60 model. Both models are a fine engineering job and capable of standing up to continuous hard work. We shall be pleased to send you further information and fully illustrated brochures on request.



16/60 TRENCHER

JOHN ALLEN & SONS (OXFORD) LTD. COWLEY OXFORD Tel 77155/6/7

MOUNTED ON EBONY SINDANYO BOARD

SINGLE TUBE PRESSURE GAUGES

INSTRUMENTS OF PRECISION

MOUNTED ON EBONY SINDANYO

MILNE'S METERS LTD
MILTON HOUSE WORKS
EDINBURGH

LEEDS BRANCH
MIDLAND METER WORKS VICTORIA ROAD

VIM
Leather Packings

VIM Leather Packings form a vital part in the operation of hydraulic, pneumatic and other mechanisms.

Resistant to oils, acids, gases, sea-water and high temperatures, they are guaranteed to last at least twice as long as any other leather packing for similar service.

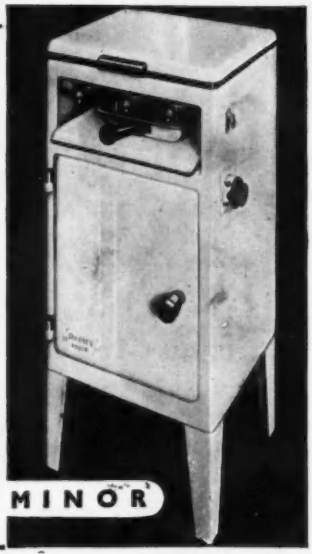
We have in Birmingham a Leather Packings Division including a well-equipped factory engaged in the production of the celebrated VIM Leather Packings. Precise methods of manufacture, high quality of materials and rigid inspection are maintained.

A Service Engineer would gladly co-operate

Edgar Vaughan & Co. Ltd.

Leather Packings Division
BIRMINGHAM · 4 · ENGLAND

BIG Capacity for LITTLE Kitchens



Especially suited to the kitchens of flats and small houses, this highly efficient cooker provides utmost cooking capacity in the least possible space. Cast iron construction ensures strength and durability and reduces maintenance costs to a minimum, thus making the Dainty Minor particularly suitable for simple hire or hire purchase.

Approved and adopted by leading gas boards

The **Dainty** MINOR

R. RUSSELL & SONS, LTD., DERBY

Agents for Scotland and Northern Ireland:
JAMES R. THOMSON & CO. LTD., 41, YORK STREET, GLASGOW, C.2

TURBO-COMPRESSORS & EXHAUSTERS FOR AIR AND GAS

★ ✣ ★

We build a complete range of Compressors & Exhausters for air and GAS, suitable for all purposes connected with the GAS industry, including Turbo-Compressors for large capacities, as illustrated below

WRITE FOR PAMPHLET No. 1018 GIVING PARTICULARS

REAVELL & CO., LTD.,
RANELAGH WORKS, IPSWICH.
Telegrams: REAVELL, IPSWICH Telephone: 2124 & 5.

I.G.E. AND HIGH CAPACITY

SLOT AND ORDINARY METERS

Nothing But the Best Materials and Workmanship Used in Their Manufacture
Repairs—Parts Supplied

R. LAIDLAW & SON (Edin.) Ltd., SIMON SQUARE WORKS, EDINBURGH
8/9, LUDGATE SQUARE, LONDON, E.C.4

PROTECTION

REFLECTION

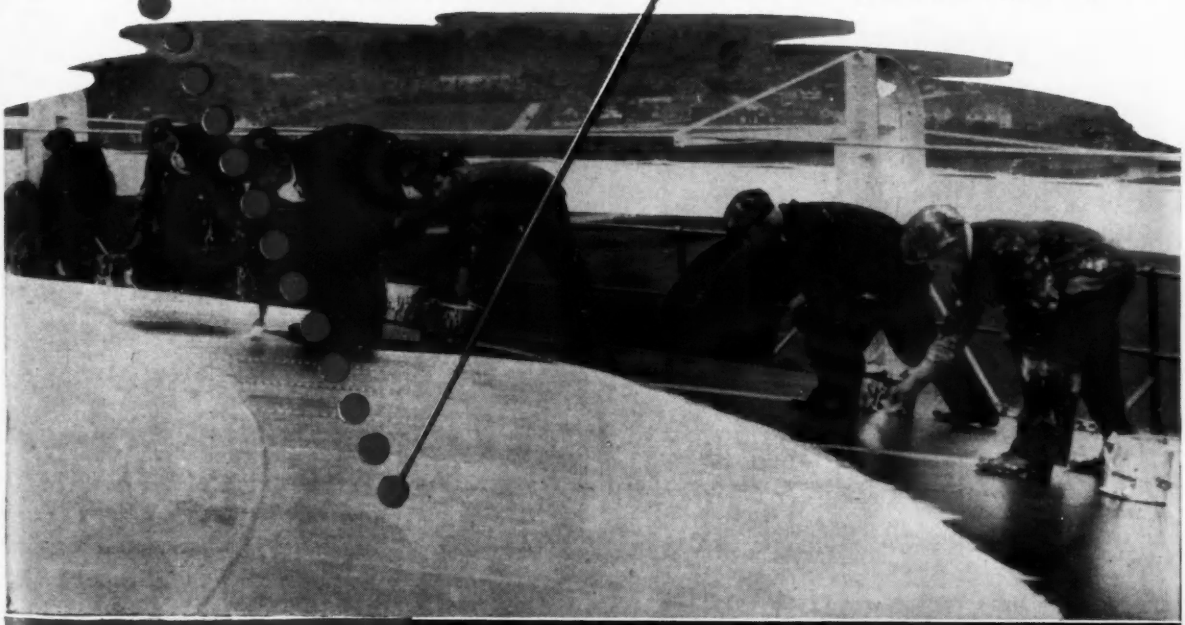
Atlas Aluminium Paints are remarkably effective, providing positive protection against corrosion and having excellent durability.

Their brilliant lustre has its advantages . . . pleasing appearance and the reflection of light and solar heat.

There are grades for use on gasholders and gasworks plant, in workshops and on spirit tanks — also high temperature resisting grades. These are described in booklet entitled "Coat of Mail Protection". Send for a copy now.

ATLAS PRESERVATIVE

REG' TRADE MARK



ATLAS Aluminium Paints

ATLAS PRESERVATIVE CO. LTD., ERITH, KENT · Telephone: ERITH 2255 (3 lines) Telegrams: Deoxydizer, Erith

TAS/AS 128

HARDMAN & HOLDEN LIMITED

Are pleased to inform the Gas Industry that adequate supplies of the necessary raw materials are now available for the manufacture of increased quantities of

MANOX OXIDE

They are therefore in a position to supply all normal requirements of this well-known purifying material and can offer prompt delivery by road or rail.

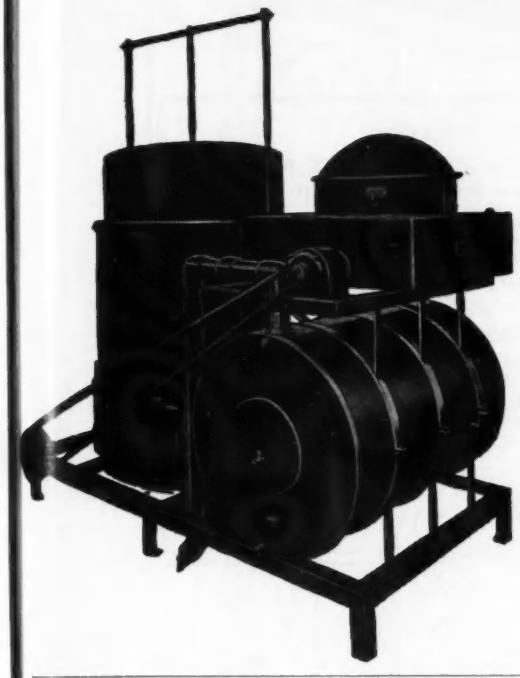
HARDMAN & HOLDEN LIMITED

Manox House, Miles Platting, Manchester 10

Telephone : COLlyhurst 1551

Telegrams : OXIDE MANCHESTER

AEROGEN GAS GENERATORS



PETROL AIR: 300 B.T.U. per cubic foot
PRODUCER AND PETROL COMBINED: 480 B.T.U. per cubic foot

Suitable for Domestic Commercial and Industrial Appliances at Home or Abroad where Town's Gas is not readily available.

Outputs of Plants Range from 100 Cubic Feet to 15,000 Cubic Feet per hour

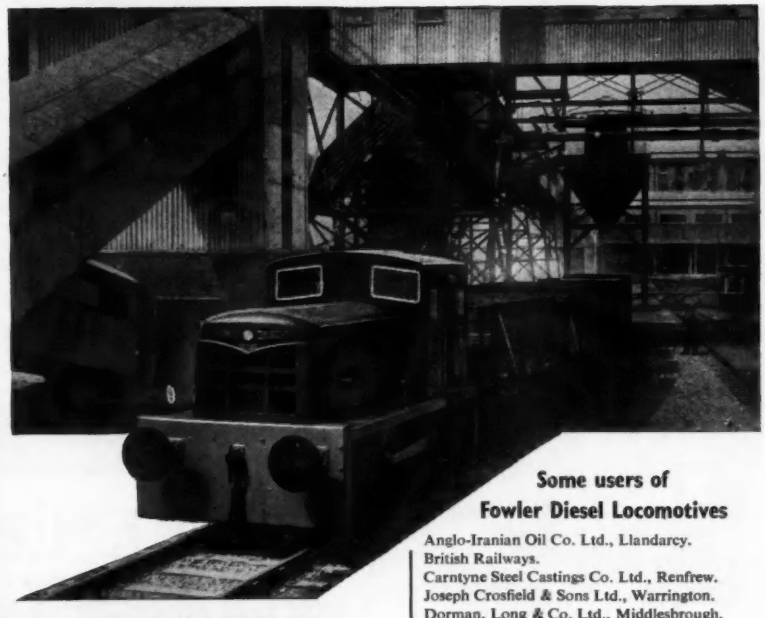
Full technical information can be obtained from:

THE AEROGEN CO. LTD.,
ALTON, HAMPSHIRE, ENGLAND

Telegrams: Aerogen, Alton, Hants. *Telephone: Alton 2081*

One of the
FOWLER
Diesel Locomotives
in service at Fisons new fertilizer factory at Immingham

THIS 150 horse-power Fowler Diesel Locomotive is always ready for instant use. It provides economical and quick yard wagon movement with the maximum comfort and vision for the driver.



Some users of Fowler Diesel Locomotives

Anglo-Iranian Oil Co. Ltd., Llandarcy.
British Railways.
Carntyne Steel Castings Co. Ltd., Renfrew.
Joseph Crosfield & Sons Ltd., Warrington.
Dorman, Long & Co. Ltd., Middlesbrough.
Fisons Ltd., Immingham and Avonmouth.
John Garrington & Sons Ltd., Bromsgrove.
Guest, Keen and Nettlefolds Ltd., Cardiff.
Imperial Chemical Industries Ltd.
Richard Johnson and Nephew Ltd., Manchester.
Michelin Tyre Co. Ltd., Stoke-on-Trent.
National Coal Board.
North Devon Clay Co., Torrington.
Pressed Steel Co. Ltd., Cowley, Oxford.
Shell-Mex and B.P. Ltd.
The Steel Company of Scotland Ltd., Glasgow.

FOWLER (LEEDS) **DIESEL LOCOMOTIVES**

In rail gauges from 2ft—5ft. 6ins.

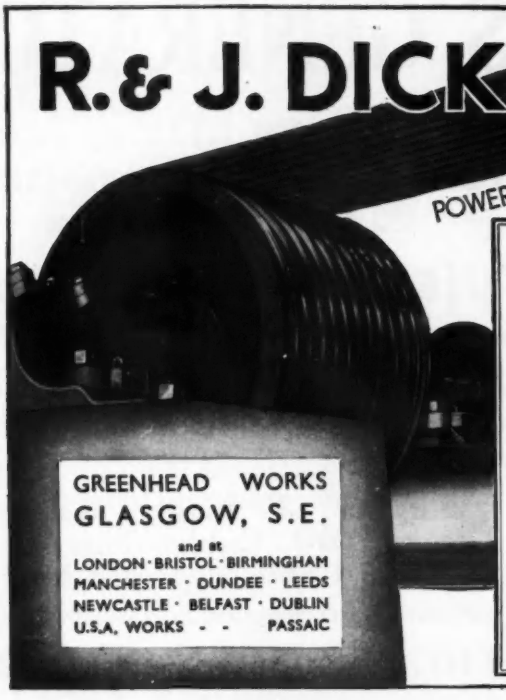
Information and literature from **John Fowler & Co. (Leeds) Ltd., Leeds, Yorks.**

Telephone: Leeds 30731 (10 lines)

A PRODUCT OF THE MARSHALL ORGANISATION, GAINSBOROUGH, ENGLAND.

R. & J. DICK LTD.

POWER TRANSMISSION SPECIALISTS



GREENHEAD WORKS
GLASGOW, S.E.
and at
LONDON · BRISTOL · BIRMINGHAM
MANCHESTER · DUNDEE · LEEDS
NEWCASTLE · BELFAST · DUBLIN
U.S.A. WORKS - - PASSAIC

Manufacturers of :-

"DICK'S ORIGINAL" BALATA Belts
For all general purpose drives

"DIXEL" VEE ROPES
Made endless or open for drives up to 3 000 H.P.

"DIXIT" Belting
Acid and Heat Resistant

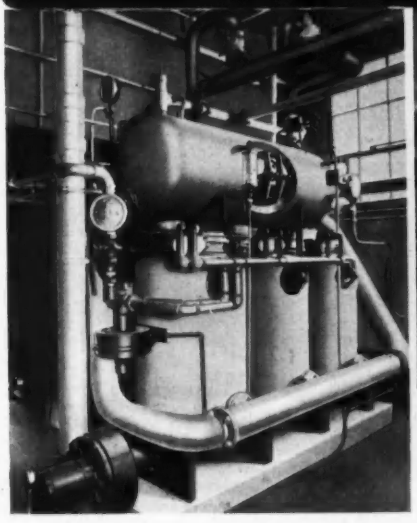
"RUBERIX" BELTING
Solid Woven from "Filastic" yarn Vulcanised

"DIXADD" BELTING
Combination Belt giving extra power

"DICKROPE"
RUBBER, MOULDED, ENDLESS

Catalogues and Price Lists on application

THE "VESTA" & "VERTEX" GAS FIRED BOILERS



Photographs by Courtesy of Wembley Stadium, Ltd

WEMBLEY STADIUM

The Boiler Plant consists of TWO B.3 "VESTA" GAS FIRED BOILERS fitted with horizontal overhead steam drums, having a total capacity of 1,350,000 B.T.U.'s per hour.

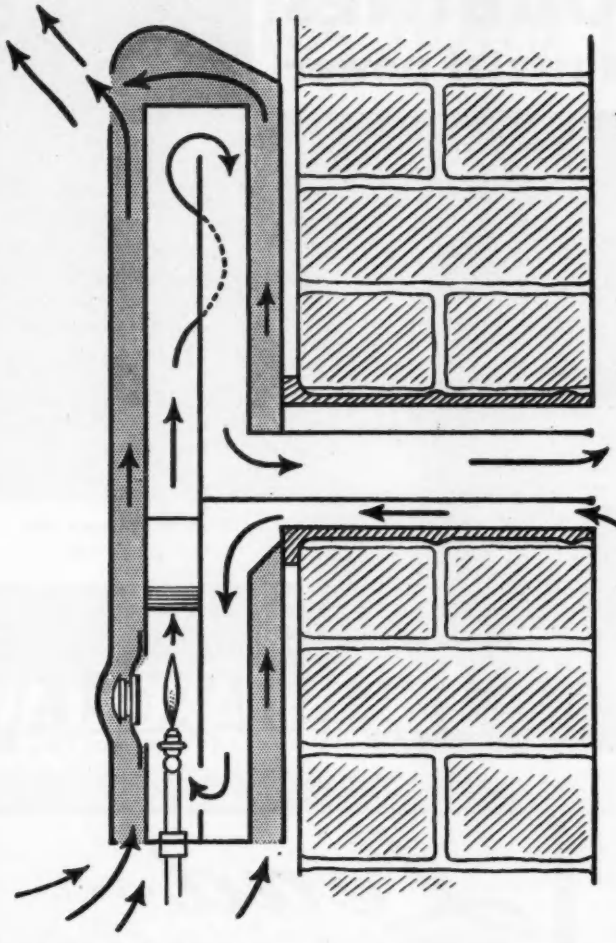
Consulting Engineers: Sir Owen Williams & Partners
Heating Specialists: James Combe & Son Ltd.

The plant supplies low pressure steam for heating two plunge baths direct and, through calorifiers, hot water for wash basins, showers and baths in the New Dressing Rooms of the Main Sports Arena.

FULLY ILLUSTRATED BROCHURE FORWARDED ON REQUEST

WE ARE ALSO THE MANUFACTURERS OF
The
"VERTEX"
GAS FIRED BOILER
DESIGNED FOR SMALLER INSTALLATIONS

AUTOCONTROL BOILERS LTD.
167 TEMPLE CHAMBERS, TEMPLE AVE., LONDON, E.C.4 PHONE: CENTRAL 7821
TELEGRAMS "AUTOCONTROL" CENTRAL 7821, LONDON



THREE STAR FEATURES

★**SAFE**

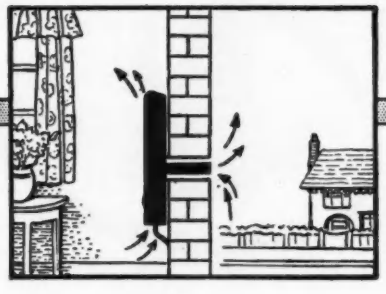
Air drawn from outside building.
Products discharged outside building.

★**EFFICIENT**

75% at any tap position.
Low consumption and running cost.

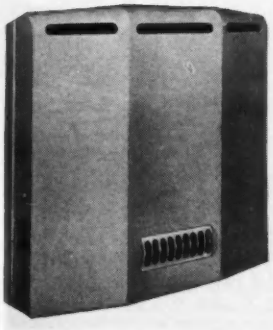
★**HEALTHY**

Room air unaffected by combustion.
Perfect circulation—adequate but not excessive ventilation.



THE "*Sapphire*"

BALANCED FLUE (GAS) SPACE HEATER



Information upon request from manufacturers

COWPER PENFOLD & CO LIMITED

VINCENT WORKS, REGENCY STREET,
LONDON. S.W.1. Tel. Victoria 3211 (4 lines)

CERTIFIED PERFORMANCE

STEAM TURBINES
for industrial power

HIGH PRESSURE
BACK PRESSURE
MIXED PRESSURE
PASS-OUT

4,000 Kw Pass-out Set
in a paper mill.

H 123

HICK HARGREAVES
AND COMPANY LTD BOLTON

Lead...

SHEETING, WATER, WASTE
GAS AND SOIL PIPES
TO CUSTOMERS' REQUIREMENTS. MANUFACTURERS OF
EMBOSSED LEAD PIPE, AS SUPPLIED TO GAS BOARDS

by R. E. ROBERTS & SON. Ltd.
OFFICE AND WORKS
WINDLEY STREET,
BOLTON LANCS
Tel. No. BOLTON 3975

GAS RETORTS
HARRIS & PEARSON
STOURBRIDGE, ENGLAND

INSULATING
BRICKS, RECUPERATOR
TUBES, SPECIAL SEMI-SILICA
QUALITY FOR SEGMENTAL RETORTS
WITH NO EXPANSION OR CONTRACTION AT 1400° C

Manufacturers of
Fire Bricks, Lumps & Tiles
OF EVERY DESCRIPTION

Serving Hand-in-Hand....

FRYSOL Flux & FRY'S Solders

These soldering products from FRY'S are made for each other! And both are old friends of Mr. Therm. Gas Meter manufacturers and Gas Boards use FRYSOL Soldering Fluid. This flux has a fast cleansing action, combined with properties that facilitate a fast smooth spread of solder. FRY'S solders have been in use for over 25 years, and when used in conjunction with the FRYSOL flux, manufacturers are assured of quick, trouble-free jointing in all stages of production and repair.

CAN FRY'S HELP IN YOUR WORKS?

Our Research and Advisory Department is constantly advising manufacturers with soldering problems. If there is a process in your works which you feel may be improved, please contact us for impartial, expert advice. Export inquiries invited.

FRY'S Metal Foundries Limited

33

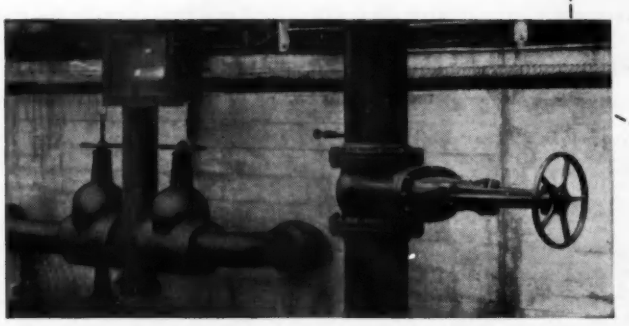
TANDEM WORKS, MERTON ABBEY, S.W.19 MITcham 4023

And at MANCHESTER · GLASGOW · BRISTOL · BIRMINGHAM & DUBLIN

Installation of the 'Counterflo' Water Cooling Towers at Messrs. Philblack Limited Bristol by Head Wrightson Processes Ltd. London.

Once again, valves by Crane ...

These 'Counterflo' Water Cooling Towers—at the Avonmouth plant of Philblack Limited, manufacturers of Carbon Black from a petroleum fraction —are the most modern timber constructed induced draught cooling towers in Europe. Treated water comes into these towers from various process lines to have the surplus heat extracted before returning to the plant for further use. It is essential that this flow of water should be rigidly controlled. That Crane valves were chosen to do this vital job—and that they are widely used in other sections of the plant—is further proof of their fine reputation throughout the oil and allied industries.



Crane 12" No. F81 Cast Iron Gate Valves, with gun metal trim, outside screw and yoke, control main risers — 4" and 6" control the oil lines.

CRANE VALVES AND FITTINGS

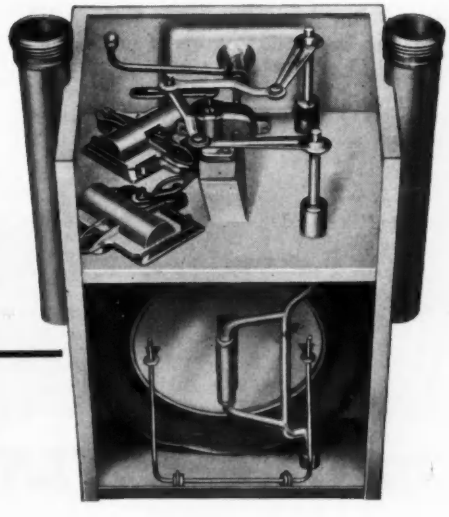
D18

CRANE LTD., 45-51 LEMAN STREET, LONDON, E.1. Works: IPSWICH. *Branches: Birmingham, Brentford, Bristol, Glasgow, Manchester*

tighter than a clam

. . . which is very tight in the case of the Giant Clams of Australia, one of which is recorded as having a shell weighing over 500 lb., with a length of 4½ feet. These clams spend their time developing powerful muscles, and at the slightest touch two serrated valves of the shell clamp together and hold the victim in an astoundingly tenacious grip. A crowbar would be needed to prise open the shell once it has gripped.

The valves in the A. & M. meter are not aggressive like those of the clam but they are equally effective in their duties. They too are very tight and will measure at half a cubic foot per hour.



Illustrated is the D.1/200 cu. ft. Ordinary Dry Meter. Note the powerful hinge and the clean lay-out of the valve and crank mechanism.

ALDER & MACKAY LTD

MAKERS OF METERS

EDINBURGH, LONDON, BRADFORD & BRANCHES

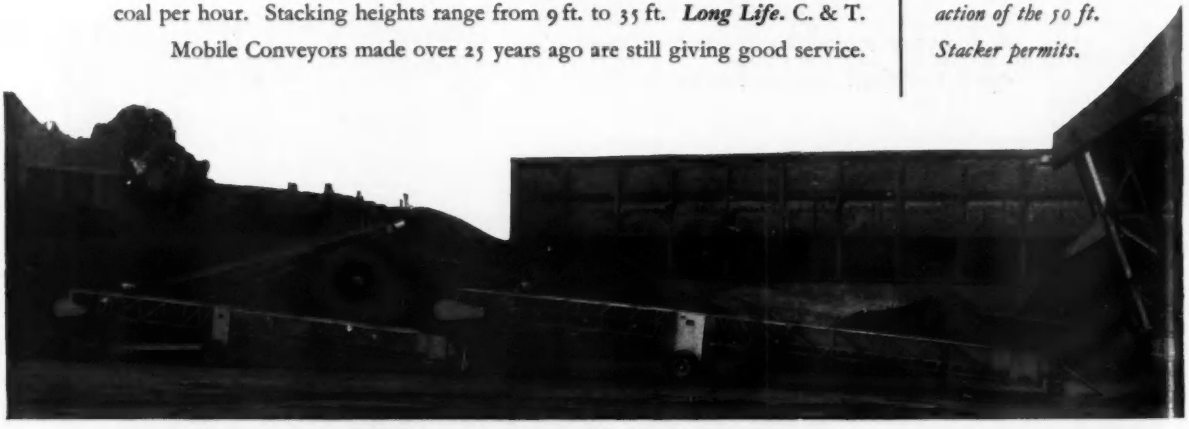
B

SWIVELLING WHEELS SAVE STACKING TIME

No need to waste time changing the position of the horizontal feed conveyors when stacking with C. & T. Super-Mobile Stackers. When a new discharge point becomes necessary the Stacker alone is moved. Its swivelling main wheels permit a radial movement of the discharge point without alteration of the feed point and this feature enables large stacks to be built up with the minimum possible movement of conveyors. Other outstanding features of C. & T. Stackers are :—

High Mobility. They are instantly available for towing any distance along the highway. ***Wide Capacity Range.*** C. & T. standard machines are built in a number of types with capacity ranging from 50 to 300 tons of coal per hour. Stacking heights range from 9 ft. to 35 ft. ***Long Life.*** C. & T. Mobile Conveyors made over 25 years ago are still giving good service.

In each of the adjoining photographs, the two 50 ft. C. & T. Horizontal Conveyors are seen to be in the same position, but note the wide area of discharge which the radial traversing action of the 50 ft. Stacker permits.

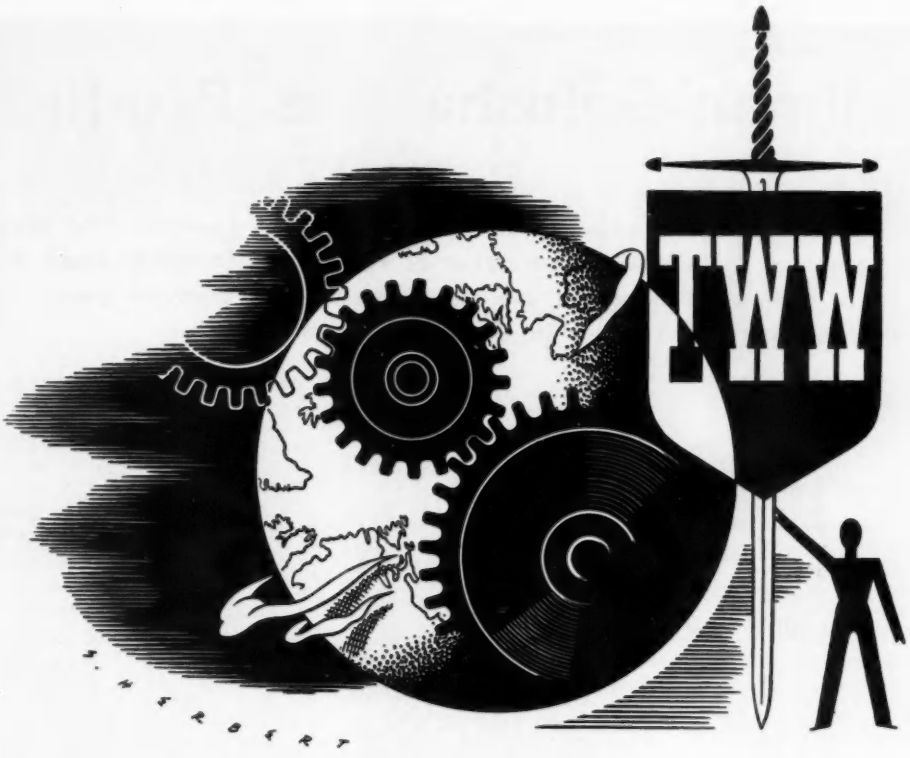


CRONE & TAYLOR (ENGINEERING) LTD.

SUTTON OAK, ST. HELENS, LANCS. TELEPHONE: ST. HELENS 339

Full particulars of this fast operating equipment will be sent on request.

C.T.4267



In countless scattered lands, the name of Ward is a symbol of industrial helpfulness. Because of its wide and varied resources, the Ward organisation has been a powerful factor in industrial development both at home and abroad. Whether in the design and construction of machinery and plant, the production of raw materials, or the rendering of many specialised services, companies of the Ward Group have played an increasingly important part in industrial progress over the past 75 years. As the Group has developed so, progressively, has its experience and its resources; as the scope of its activities has extended, so has its capacity for service in every corner of the industrial world.

SYMBOL OF EXPERIENCE AND SERVICE

The T.W.W. Service Includes :-

IRON AND STEEL · NON FERROUS METALS · PLANT & MACHINERY · TRACTORS & EARTH MOVING PLANT · FOUNDRY PLANT & SUPPLIES · CONTRACTORS' PLANT & EQUIPMENT · EXCAVATORS & CRANES · INDUSTRIAL PLANT · STRUCTURAL STEELWORK CEMENT · GRANITE & FREESTONE · ROADSTONE & ROADMAKING · INDUSTRIAL DISMANTLING · RAILS & SIDINGS SHIPBREAKING · WIRE & WIRE PRODUCTS · NUTS & BOLTS · PACKINGS & JOINTINGS · INSULATING MATERIALS FOOD PREPARING MACHINERY · FACTORY PLANNING & INSTALLATION

THOS. W. WARD LTD.

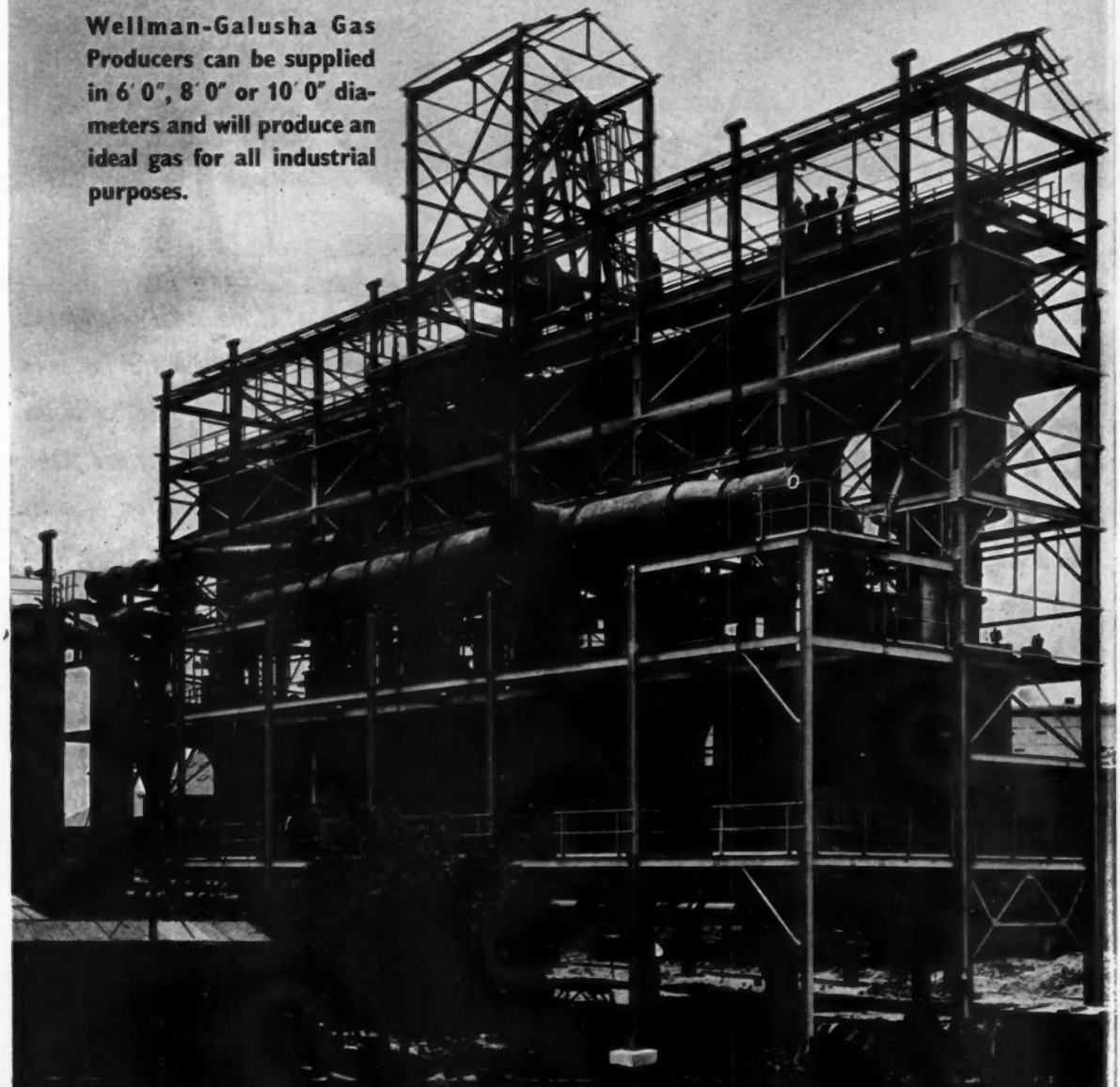
ALBION WORKS · SHEFFIELD

AND LONDON, GLASGOW, MANCHESTER, BIRMINGHAM, LIVERPOOL, BRISTOL, GRAYS, WISHAW, PRESTON, BARROW, BRITON FERRY MIDDLESBROUGH, MILFORD HAVEN, INVERKEITHING ANTWERP, PARIS, BOMBAY, CALCUTTA, SYDNEY, AND STOCKHOLM GP/40

Wellman-Galusha Gas Producers

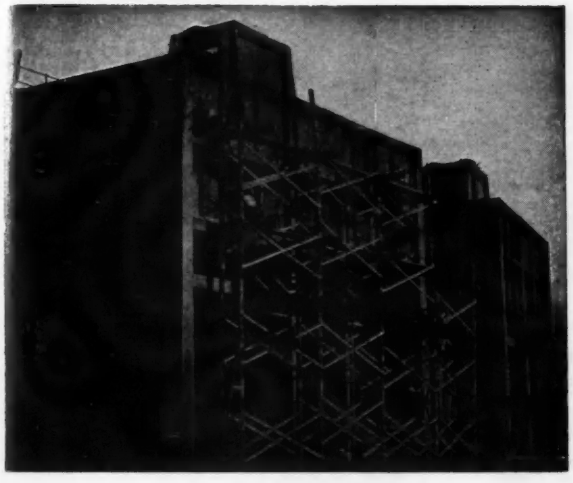
A battery of seven 10′ 0″ diameter Wellman-Galusha Gas Producers, for gasifying Natal anthracite coal—under construction at Vereeniging, Transvaal, South Africa. The entire installation is one of the most extensive gas producer plants to be erected initially as one battery in the British Commonwealth.

Wellman-Galusha Gas Producers can be supplied in 6′ 0″, 8′ 0″ or 10′ 0″ diameters and will produce an ideal gas for all industrial purposes.



THE WELLMAN SMITH OWEN ENGINEERING CORPN. LTD.
PARNELL HOUSE, WILTON ROAD, LONDON, S.W.1 WORKS: DARLASTON, SOUTH STAFFS.

Gunite



One of the reinforced concrete structures reconditioned with Gunite for the City of Carlisle Gas Undertaking.

Gunite—concrete applied by air pressure—has numerous applications where its great density and extreme adhesion have exceptional value.

For repairing reinforced concrete it has particular merit, as, due to the method of application, a uniform density and adherence is obtained whenever Gunite is applied.

For lining coal bunkers and steel chimneys it possesses great resistance to corrosion and protects steel-work from the abrasive action of coal or coke.

Handbook "GUNITE" sent on request

THE CONCRETE PROOFING CO., LTD.

100, VICTORIA STREET, S.W.1

Telephone : Victoria 7877 & 6275

Metolite

REGD.

LIGHTER FLINTS

FOR

AUTOMATIC IGNITION OF DOMESTIC COOKERS GAS REFRIGERATORS, FIRES, ETC

GET IN TOUCH WITH THE ACTUAL MANUFACTURERS

ESTD. 1928

BRITISH FLINT & CERIUM MANUFACTURERS LIMITED

TONBRIDGE · KENT

PHONES: TONBRIDGE 2753 & 2970 GRAMS: BRITFLINT, TONBRIDGE

London Offices: 8, SPRING GARDENS, TRAFALGAR SQUARE, S.W.1

'PHONE: WHITEHALL 1357 CABLES: "CERIDE, LONDON" GRAMS: "CERIDE PARL, LONDON" CODES: BENTLEY'S SECOND

CONTRACTORS TO H.M. GOVERNMENT

Buildings of every Type for the Gas Industry

Horizontal Retorts
Gasholder Tanks
Railway Sidings
Pile Driving
Foundation Work
Breaker Pits
Hoppers
Bunkers
Retort Houses
Coal Stores
Gantries
Water Towers
Purifier Houses
Chimneys
Retaining Walls
Reservoirs

We specialise in construction and welcome your inquiries at any time for any of the plant mentioned.

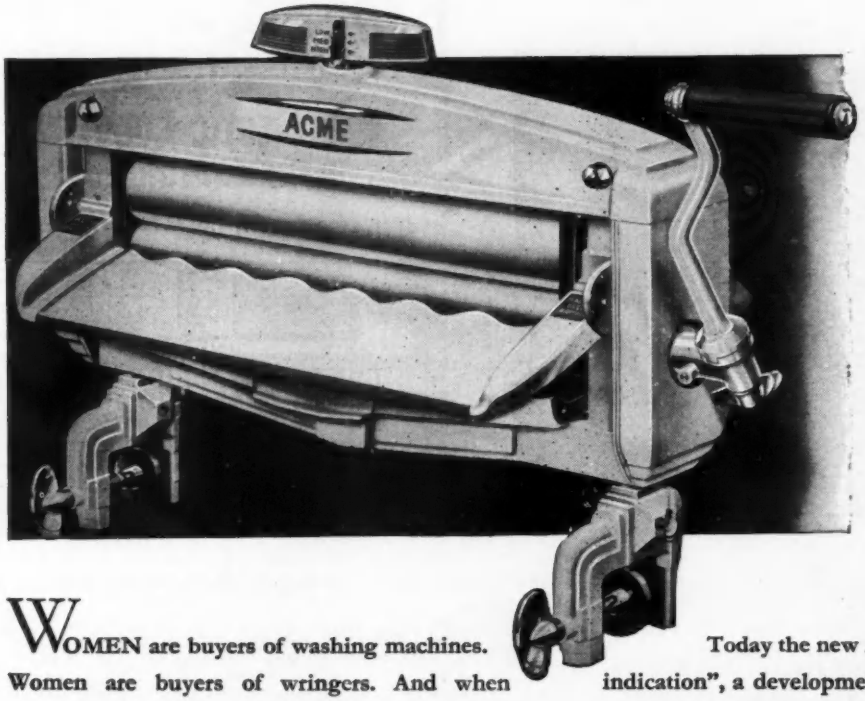
THOS VALE & SONS, LTD.

ESTD. 1869

STOURPORT, WORCS.

REINFORCED CONCRETE STRUCTURES.

When washing machines are Acme-fitted **then** women know they're buying the best . . .



WOMEN are buyers of washing machines. Women are buyers of wringers. And when women think of wringers they think of the Acme. So when your machines are Acme-fitted your customers know that they must be, like the Acme, the best on the market.

Seventy years of good, solid British manufacturing, skill, research, and experience stand behind each Acme—and generations of women know this to be true. Acme is the perfect expression of real and continuous progress in the history of wringing. Thus, every feature for which Acme is famous, has sprung from a known need; has been tested, tried and found successful before it leaves the factory.

Today the new Acme has "pressure indication", a development which, by assuring the correct pressure for every kind of fabric, takes the guesswork out of wringing. Silks, cottons, woollens, linens, now receive exactly the right pressure needed to extract water, expel embedded dirt and preserve the life of each fabric. Thus wringing is made simpler and easier.

Acme does a better job, lasts longer and gives the best results. That's why Acme's reputation is world wide. That's why more than four million women have chosen an Acme in preference to all others. That's why, when your washing machines are Acme-fitted, women know they're buying the best.

ACME WRINGERS LIMITED DAVID STREET GLASGOW SE

INDEX TO 'JOURNAL' ADVERTISERS

A — PAGE

A.C.E. Machinery, Ltd. ... ...
Abbott, Birks & Co., Ltd. ... ...
Acme Wringers, Ltd. 550
Aerogen Co., Ltd. 539
Aerograph Co., Ltd. ... ...
Alder & Mackay, Ltd. 545
Alexander Controls Ltd. 587
Allan Taylor (Engineers) Ltd., ...
Allen, John & Sons (Oxford) Ltd. 534
Anal, Ltd. ... ...
Ascot Gas Water Heaters, Ltd. ... ...
Ascot Gas Water Heaters, Ltd. (F.A. Neat) ...
Ashmore, Benson, Pease & Co. ... ...
Ashworth, Thos., & Co., Ltd. ... ...
Aspinall's (Paints), Ltd. ... ...
Associated Lead Manufacturers, Ltd. ... ...
Associated Lead Manufacturers, Ltd. (Rustodian) ...
Atlas Preservative Co., Ltd. 537
Audley Engineering Co., Ltd. ... ...
Autocontrol Boilers, Ltd. 540
Automatic Telephone & Electric Co., Ltd. ...
Automotive Products, Ltd. ... ...
Averill, C. R., Ltd. ... ...

B

Bale & Church, Ltd. 589
Balfour, Henry, & Co., Ltd. 531
Baguaco Meters, Ltd. ... .
Bell's Asbestos & Engineering, Ltd. ... ...
Benham & Sons, Ltd. ... ...
Bakeley Firth, Sons & Co., Ltd. 588
Booth, John, & Sons (Bolton), Ltd. 587
Bratt Colbran, Ltd. ... ...
Bray, George, & Co., Ltd. ... ...
Bray, W. E., & Co., Ltd. ... ...
British Flint & Cerium Manufacturers, Ltd. ... 549
British Gas Purifying Materials Co. ... ...
British Oxygen Co., Ltd. ... ...
British Paints, Ltd. 588
British Rototherm Co., Ltd. ... ...
British Thermostat Co., Ltd. ... ...
British Thomson Houston, Ltd. ... ...
British Vacuum Cleaner & Engineering Co., Ltd.
Broadbent, Thomas, & Sons, Ltd. ... ... [illegible]
Brockhouse Heater Co., Ltd. ... ...
Broom & Wade, Ltd. ... ...
Brown, J., & Co., Ltd. ... ...
Bugden, Thos., & Co. 588
Bunn & Johnson, Ltd. ... ...

C

Cambridge Instrument Co., Ltd. ... ...
Cannon (G.A.), Ltd. ... ...
Cementation Co., Ltd. 532
Chamberlain Industries, Ltd. ... ...
Chaseside Engineering Co., Ltd. ... ...
Chemical Engineering Wiltons, Ltd. ... ...
Chemical & Insulating Co., Ltd. ... ...
Cinema-Television, Ltd. ... ...
Clapham Bros., Ltd. ... ...
Clayton, Son & Co., Ltd. ... ...
Clifford Engineering Co., Ltd. ... ...
Cochrane (Middlesbro') Foundry, Ltd. ... ...
Cohen, George, Sons & Co., Ltd. ... ...
Concrete Proofing Co., Ltd. 549
Consolidated Pneumatic Tool Co., Ltd. ... ...
Cort, Robert, & Son, Ltd. ... ...
Cox & Danks, Ltd. ... ...
Crane, Ltd. 544
Crone & Taylor, Ltd. 546
Crosby & Co. Ltd. ... ...
Crossley Bros. ... ... Cover II
Curtis, A. L., & Co. ... ...
Cutler, Samuel, & Sons, Ltd. ... ...

D

Davey, Paxman & Co., Ltd. ... ...
De la Rue, Thomas, & Co., Ltd. (Gas Group) ...
Dempster, R. & J., Ltd. ... ...
Dempster, Robert, & Sons, Ltd. ... ...
Denison & Son Ltd. ... ...
Derbyshire Silica Firebrick Co., Ltd. ... ...
Diaphragm & General Leather Co., Ltd. ... ...
Dick, R. & J., Ltd. 540
Donkin (The Bryan) Co., Ltd. ... ... Cover III
Douglas, Robert M., (Contractors), Ltd. ...
Douglas, William, & Sons, Ltd. ... ...
Drakes, Ltd. ... ...
Dresser Manufactures (England), Ltd. 579
Drew, H. B., Ltd. ... ...
Dunlop & Ranken, Ltd. ... ...
Dunlop Rubber Co., Ltd. (Gen. Rubber Goods Division) ... ...

E

E.B. Refractory Cement Co., Ltd. ... ...
Edgar, William, & Son, Ltd. ... ...
Electrofio Meters Co., Ltd ... ...
Electrolux, Ltd. ... ...
Elliott Bros. (London), Ltd. ... ...
Ether, Ltd. ... ...
Evershed & Vignoles, Ltd. ... ...
Ewart Chainbelt Co., Ltd. 588
Expanded Metal Co., Ltd. ... ...

F

Fisher & Ludlow Ltd. ... ...
Fivel, S., & Co., Ltd. 583
Fluxite, Ltd. ... ...
Fowler, John, & Co. (Leeds), Ltd. 539
Franki Compressed Pile Co., Ltd. ... ...
Franklin Furnace Co., Ltd. ... ...

Fry's Metal Foundries, Ltd. 543
Fyffe & Co., Ltd. ... ...

G

Gas Chambers & Coke Ovens, Ltd. ... ...
Gas Purification & Chemical, Ltd. 589
General Descaling Co., Ltd. ... ...
General Electric Co., Ltd. ... ...
General Gas Appliances, Ltd. ... ...
Gibbons Bros., Ltd. ... ...
Gibson, John, & Son, Ltd.... ... ...
Glover, George, & Co., Ltd. ... ...
Glover, Thomas, & Co., Ltd. 554
Goodall Clayton & Co., Ltd. ... ...
Goodyear Mechanical Goods ... ...
Gordon J. R. & Co., ...
Grant & West, Ltd. ... ...
Graphite Products, Ltd. ... ...
Green & Boulding, Ltd. 590
Gunite Construction Co.,Ltd. ... ...

H

Hattersley & Davidson ... ...
Hamilton, A. H., & Co., Ltd. 592
Hardman & Holden, Ltd. 538
Harris & Pearson, Ltd. 542
Harrisons (London), Ltd. ... ...
Harvey, G. A., & Co. (London), Ltd. ... ...
Hick Hargreaves & Co., Ltd. 542
Hilmor, Ltd. ... ...
Hills (West Bromwich), Ltd. ... ...
Holman, Michell & Co., Ltd. ... ...
Holmes, W. C., & Co., Ltd. 591
Hopkinsons, Ltd. ... ...
Honeywell-Brown, Ltd. ... ...
Horseley Bridge & Thomas Piggott, Ltd. ... ...
Horstmann Gear Co., Ltd. ... ...
Howden, James, & Co., Ltd. ... ...
Humphreys & Glasgow, Ltd. 552

I

Ideal Boilers & Radiators, Ltd. ... ...
I.C.I., Ltd. (Metals Division) ... ...
Inertol Co. Ltd. ... ...
Ingham, John, & Sons, Ltd. ... ...

J

Jeavons, E. E., & Co., Ltd. ... ...
Jeavons Engineering Co. 532
Jenkins, W. J., & Co., Ltd. ... ...
Johnson, C. H. (Machinery), Ltd. ... ...

K

Keay, E. C. & J., Ltd. ... ...
Keith Blackman, Ltd. 592
Kent, Geo. Ltd., ...
Kings Patent Agency, Ltd. 590
King, Walter, Ltd. 588, 589, 590
Kirk & Co. (Tubes), Ltd. ... ...
Kirkham Hulett & Chandler, Ltd. ... ...

L

LaFarge Aluminous Cement Co., Ltd. ... ...
Laidlaw, R., & Son (Edin.), Ltd. 536
Lamont, James H., & Co., Ltd. ... ...
Lanarkshire Bolt & Rivet Co., Ltd. ... ...
Lancashire Dynamo & Crypto, Ltd. ... ...
Le Bas Tube Co., Ltd. ... ...
Lionweld, Ltd. ... ...
Lind, Peter, Ltd. ... ...

M

Magnetic Valve Co., Ltd. ... ...
Main, R. & A., Ltd. 584, 585
Main Refrigeration Ltd. 579
Marco Conveyor & Engineering Co., Ltd. ... ...
Mechanical Handling ... ...
Meigh Castings, Ltd. ... ...
Meltham Silica Fire Brick Co., Ltd. ... ...
Mercol Products, Ltd. ... ...
Messenger & Sons, Ltd. ... ...
Meters Ltd. ... ...
Metropolitan Leather Co., Ltd. ... ...
Milnes Meters, Ltd. 534
Mint, Birmingham, Ltd. ... ...
Mitcham Smelters, Ltd. ... ...
Mitchell Engineering Ltd. ... ...
Mitchell, H., & Co. ... ...
Moler Products, Ltd. ... ...
Monitor Engineering & Oil Appliances, Ltd. ... ...
Monk, A., & Co., Ltd. ... ...

N

National Benzole Co., Ltd.... ... ...
National Enamels, Ltd. ... ...
New Conveyor Co., Ltd. ... ...
Newton Chambers & Co., Ltd. ... ...
Norwest Construction & Co., Ltd. 529
Nu-Swift, Ltd. 589

O

Oxley Engineering Co., Ltd. ... ...

P

Parkinson & Cowan (Gas Meters), Ltd. 554
Parkinson Stove Co., Ltd. ... ...
Pass, E., & Co., Ltd. ... ...
Peckett & Sons, Ltd. ... ...
Peebles & Co., Ltd. 530
Pegson, Ltd. ... ...
Perl Controls, Ltd. ... ...
Plenty & Son Ltd. ... ...
Power Gas Corporation, Ltd. ... ...

Pratt Engineering Co. ... ...
Press, William, & Son, Ltd. ... ...
Pulsometer Engineering Co., Ltd. ... ...

R

R.T.S.C. Home Sales, Ltd. ... ...
Radiant Heating, Ltd. ... ...
Radiation, Ltd. 568, 569
Rawlplug Co., Ltd. ... ...
Reavell & Co., Ltd. 536
Remington Rand Ltd., ...
Richmond Welding Co. ... ...
Ride & Bell, Ltd. ... ...
Riley, A. J., & Son, Ltd. ... ...
Roberts, R. E., & Sons, Ltd. 542
Robinson, J. H., & Co. (Liverpool), Ltd. ... ...
Rook Bros., Ltd. ... ...
Rotameter Manufacturing Co., Ltd. ... ...
Royston, Geo., & Son, Ltd. ... ...
Russell Bros. (Walsall), Ltd. 592
Russell, R., & Sons, Ltd. 536

S

Salter, T. E., Ltd. ... ...
Senior Economisers, Ltd. ... ...
Shelton Iron, Steel & Coal, Co., Ltd. ... ...
Siebe Gorman & Co., Ltd.... ... ...
Siemens-Schuckert (Great Britain), Ltd. ... ...
Sigma Instrument Co., Ltd. ... ...
Sigmund Pumps, Ltd. ... ...
Simon-Carves, Ltd. ... ...
Simon, Richard, & Sons, Ltd. ... ...
Sisson, W., & Co., Ltd. ... ...
Smith Meters, Ltd. ... ...
Smith, Thos., & Sons (Rodley), Ltd. ... ...
Soil Mechanics, Ltd. ... ...
Spencer Bonecourt, Ltd. ... ...
Sperryn & Co., Ltd. ... ...
Stanton Ironwork Co., Ltd. ... ...
Staveley Iron & Chemical Co., Ltd. ... ...
Steels Eng. Products Ltd. ... ...
Stein, John G., & Co., Ltd. ... ...
Stelcon (Industrial Floors), Ltd. ... ...
Stewart & Gray, Ltd. ... ...
Stewarts & Lloyds, Ltd. ... ...
Stoves, Ltd. ... ...
Strachan & Henshaw, Ltd.... ... ...
Stringer Bros. ... ...
Sugg, Wm., & Co., Ltd. 541
Summerson, Thos. & Sons Ltd. ... ...
Sutcliffe Speakman & Co., Ltd. ... ...
Sutherland, A. G., Ltd. ... ...

T

Tangyes Ltd., ...
Thermal Syndicate, Ltd. 553
Thomas & Bishop, Ltd. ... ...
Thomas (Richard) & Baldwins, Ltd. ... ...
Thompson, John, Conveyor Co. ... ...
Thorp, Thomas, & Co., Ltd. ... ...
Tucker, Eyelet, Geo., Co., Ltd. ... ...
Tully, Sons & Co., Ltd. ... ...
Turners Asbestos Cement Co., Ltd. ... ...

U

Underpressure Engineering Co., Ltd. ... ...
United Kingdom Construction & Engineering Co., Ltd. ... ...

V

Vale, Thomas, & Sons, Ltd. 549
Vaughan, Edgar & Co. Ltd. 535
Visco Engineering Co., Ltd. ... ...
Vulcan Stove Co., Ltd. ... ...

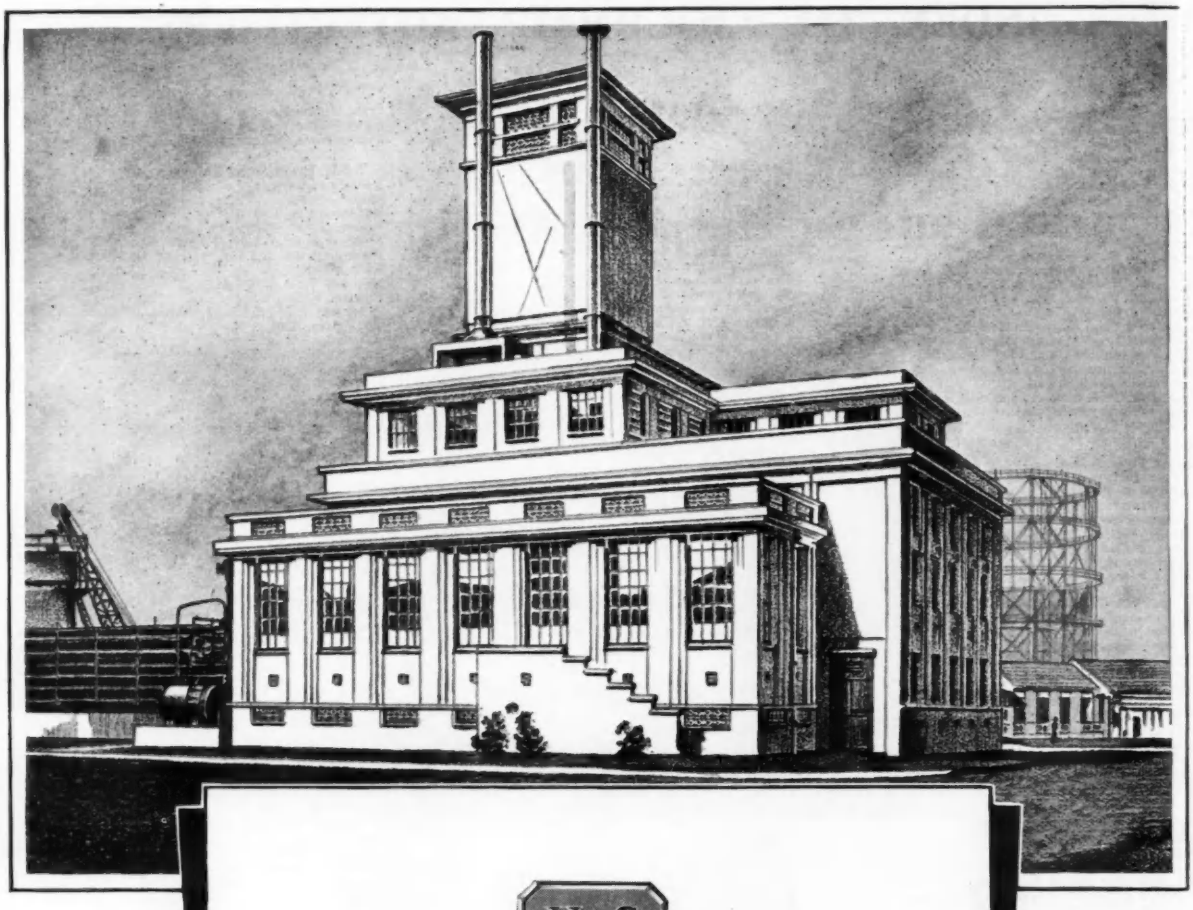
W

Wakelin, F. H., Ltd. ... ...
Walker, C. & W., Ltd. ... ...
Walker, Crosweller & Co., Ltd. ... ...
Wallach Bros., Ltd. ... ...
Waller, George, & Son, Ltd. ... ...
Ward, Thos. W., Ltd. 547
Weatherill, F. E., Ltd. ... ...
Weir, G. & J., Ltd. ... ...
Wellington Tube Works, Ltd. ... ...
Wellman Smith Owen Engineering Corpn., Ltd. 548
West's Gas Improvement Co., Ltd. ... Cover III
West Hunwick Silica & Firebrick Co., Ltd. ... ...
West's Piling & Construction Co. ... Cover IV
Westwood & Wrights, Ltd. 590
Wheeloc, Ltd. ... ... Cover I
Whittaker Hall & Co. (1929), Ltd. ... ...
Wilkes, A. H., & Co., Ltd. ... ...
Willey & Co., Ltd. 533
Williams, John E., Ltd. ... ...
Williamson Cliff, Ltd. ... ...
Wilson, George, Gas Meters, Ltd. ... ...
Winn & Coales, Ltd. ... ...
Woodall-Duckham Construction Co., Ltd. ... 567
Wood, Hugh, & Co., Ltd. ... ...

Y

Yorkshire Copper Works, Ltd. ... ...

Agency 590
Appointments Vacant 590
Appointment Wanted ... ...
Contracts Open 590
Educational ... ...
Fellowship ... ...
Miscellaneous 590
Notice ... ...
Patents 590
Plant &c. Wanted 590
Plant For Sale ... ...
Publications ... ...
Research Scholarship ... ...



H&G

INSTALLATIONS ABROAD

Carburetted Water Gas Plant
at the new Oran Gas Works
of

ÉLECTRICITÉ ET GAZ D'ALGÉRIE

HUMPHREYS & GLASGOW LTD.

HUMGLAS HOUSE · CARLISLE PLACE · LONDON SW1

Telephone: VICtoria 3961

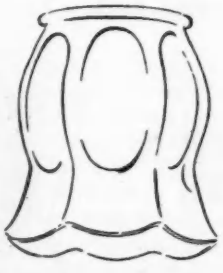
ESTABLISHED 1892

When high thermal shock resistance counts . . .

Vitreosil has an extremely low co-efficient of expansion and is free from fracture due to rapid changes in temperature. The high working temperature of 1000°C. and homogeneous surface makes it the ideal material for laboratory analyses, or combustion experiments where high purity is essential. A comprehensive range of laboratory pieces and special analysis equipment is available.

VITREOSIL
pure fused silica

The attractive translucent finish of a Vitreosil gas globe is ideal for diffused lighting. A standard range of gas globe fittings is always available for prompt delivery.



THE THERMAL SYNDICATE LIMITED
WALLSEND · NORTHUMBERLAND
Telephone: Wallsend 63242
London Office: 12-14 Old Pye Street, Westminster, S.W.1

Gas Journal

106th YEAR OF PUBLICATION

EDITOR: CLIFFORD A. KING
Deputy Editor: Arthur C. Cross
Technical Editor: Norman S. Smith, B.Sc., Assoc.M.Inst.Gas E.

11, BOLT COURT, FLEET ST., Telephone: CENtral 2236-7
LONDON, E.C.4. Telegrams: Gasking, Fleet.

VOL. 278 NO. 4748 June 2, 1954

CONTENTS

Page

EDITORIAL COMMENT

Safety in the Gasworks ... 555
Gas Gallery ... 556
Natural Gas in Pakistan ... 556
Profit Sharing ... 557

SPECIAL ARTICLE

Gas in France. Abstracts from the French Technical Press by 'Ashton' ... 558

NEWS OF CURRENT EVENTS

Wage Increases ... 557
Personal ... 557
Obituary ... 557
Long Service in Scotland ... 559
Diary ... 559
Calendar and Directory Alterations ... 559
Echo of 150 Years or More: Gas Gallery at the Science Museum ... 560
A Bratt Colbran Installation in Brussels ... 562
Hull University ... 571
Iron and Steel Research ... 573
'Change Is Our Ally' ... 575
Midland Section Welcomes New Chairman ... 576
North of England Section ... 577
Society of British Gas Industries ... 581
Women's Gas Federation ... 582
Dear Coke Protest ... 586
Scottish Juniors Golf Outing ... 586
Smokeless Zone at Nottingham ... 586
News in Brief ... 586

TECHNICAL RECORD

C.W.G. in North Thames. By J. Burns, G.M., B.Sc., Ph.D., F.Inst.F., Chief Engineer, N.T.G.B. ... 563
Reconstruction in the Extreme South West. By T. L. Tallentire, S.W.G.B. ... 566
Mains and Services. Discussion on the paper by G. Fitton ... 571
Development Since Nationalisation. By Charles C. Wood, M.Inst.Gas E., General Manager, Sheffield and Rotherham Division, E.M.G.B. ... 572
Northern Area Reconstruction. By G. W. Perks, M.Inst.Gas E., Stockton Division, N.G.B. ... 574

GAS CONSULTATIVE COUNCILS

Eastern: Tributes to Retiring Chairman; Scottish: Further Development Schemes; North Eastern: Refrigeration Hire Terms Approved; Wales: Coal Price Discrimination Alleged; West Midlands: Gas Sales Affected by Weather ... 578

Subscription Rates: Home and Empire 52/-; Foreign 60/-
Full Publishers' Notice: See Page 589.
Gas Journal . . . . Walter King Ltd.

The Symbol of Craftsmanship

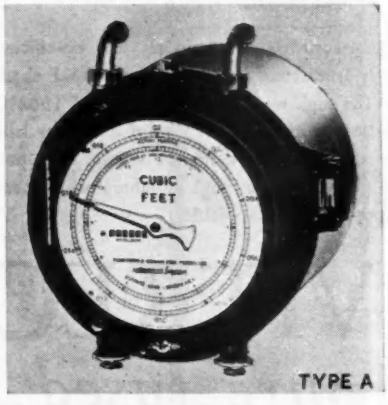
THOS. GLOVER & CO. LTD.
Gothic Works, Angel Rd.,
EDMONTON, LONDON, N.18
and Branches

TGJ

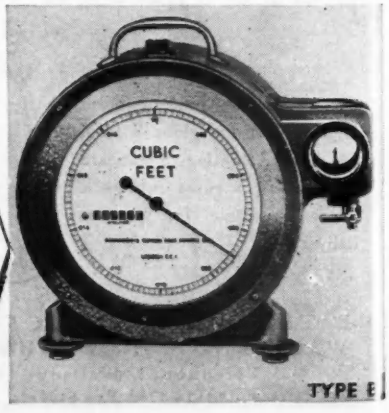
For accurate MEASUREMENT of small volumes of GASES

Type A Test Meter for the Laboratory
A Meter which sets up entirely new standards of accuracy in Engineering, Industrial and Medical Research.

Type B Portable Test Meter
For normal Works tests, light weight, accurate, easily serviced and maintained.



TYPE A



TYPE B

PARKINSON & COWAN INDUSTRIAL PRODUCTS
(A DIVISION OF PARKINSON & COWAN LTD)
DEPARTMENT (Q)
COTTAGE LANE WORKS, CITY RD., LONDON, E.C.1
Phone: CLErkenwell 1766

Science Museum
Gas Gallery
(see pp. 560-562)

Gas Journal

VOL. 278. No. 4748 106TH YEAR June 2, 1954

SAFETY IN THE GASWORKS

The admirable codes of safety recommendations issued from time to time by the Institution of Gas Engineers no doubt cover most of the risks which are inherent in the day-to-day operation of the gasworks, but there was certainly no apology needed for Mr. D. W. Ault's excellent little paper outlining developments of safety measures in the area of the East Midlands Gas Board. It was one of those intelligent chats so much enjoyed by engineers when they gather together to exchange experiences and ideas about their jobs. Specific examples give life to rules and may prompt the useful formulation of others.

Mr. Ault classifies the three types of accident most likely to be fatal and most common in the gas industry as gassing, explosion, and trapping under heavy transmission or conveying machinery, but it is curious that his reference to an annual report of the Chief Inspector mentions only one accident due to gassing. Presumably this apparent freedom from gassing is due to a well-ingrained awareness on the gasworks of this particular risk and familarity with methods to avoid it. Explosion is another matter. The nose may give warning of the presence of gas in quantity (though not of producer gas) but it cannot indicate the build-up of an explosive mixture. A quantity of explosive mixture of probably less than 150 cu.ft. is sufficient to produce an explosion which could have fatal consequences. To form such a mixture only 15 cu.ft. of coal gas is required. And this is just the size of the pocket of gas and air which would be out of the way and liable to pass unnoticed. This portion of Mr. Ault's paper will be carefully noted.

Gasholders and purifiers have been probably more closely covered by the Institution's Safety Rules than any other of the gasworks plant. For chains and lifting gear, as for all other moving machinery, careful marking and scheduling for regular, periodic inspection are of the very essence of safety. Mr. S. H. Stokes called attention to this point. Every element with the potentiality of fracture under load should be marked and a record sheet should be kept against it, showing the dates on which it is to be returned to store for inspection, testing or annealing together with history notes showing when these operations were actually carried out and with what result. In the case of conveying and other moving machinery inspection can be usefully combined with lubrication and cleaning. We have seen charts in a maintenance engineer's office where every motor, gear box, conveyor roller, and many other items are shown, each with a movable coloured marker, coded to show when each point is to be visited, or has been visited, whether repairs are required or renewals effected. It is only when every vulnerable point is regularly inspected and reported upon that the maintenance engineer can feel that his duty is completely fulfilled. And Mr. Ault's instruction that all condemned tools, particularly lifting tackle, must be definitely destroyed under competent supervision will be greated with all-round approval. Too often the frugal soul tries to get one more lift out of a defective sling which to him seems to have nothing wrong with it.

The author insists on the usefulness of clear wiring diagrams in lessening electrical risks. It would appear that the provision of clear drawings of gas connections is no less useful in reducing those risks arising all too frequently out of the opening or closing of an incorrect valve. We remember seeing on at least one fine works, in every building containing plant (such as the exhauster house, meter house, etc.) and in the neighbourhood of every main item of plant in the opening, a clear, framed, coloured, and well-annotated drawing showing all valves and all connections in and out of the plant—details not necessarily in sight. Such provisions give the operator a confidence which should go a long way to the elimination of errors in the manipulation of by-passes and connections.

The provision of non-sparking tools made in non-ferrous metals is a very interesting development of precautions against accidental gas ignition. No effort should be spared to obtain the production of a non-sparking blade to stand up to compressed-air cutting.

It is good to note Mr. Ault's liberal attitude to the responsibility of the contractor for careful design to ensure safety. It should not be difficult to deal fairly with him and at the same time to protect him against unfair competition. After all, it is not unusual to specify that the design shall cover the requirements of the Factories Acts and Regulations. Most contractors are fully prepared to abide by the decisions of a competent inspector appointed under those Acts and to take the

financial risk of being called upon to provide such additional guarding and means of access as the inspector may require before the plant is put into operation. There is, however, a 'no-man's land' where risks must be taken, and which is not always satisfactorily explored. The contractor's man himself must get about his structures before platforms are installed. And here safety problems are so complicated as only to be solved by the skill and experience of the foreman erector.

Finally, there is nothing so potentially dangerous as safety devices which fail to function when the emergency arrives, by-pass valves which are allowed to dry out and stick, so that they cannot be opened or closed quickly, 'automatic' reliefs which, having never moved for months, or years, on end, will not move when called upon. Mr. E. H. Winch remarked on the potential hazards in intermittent operations which 'perhaps only took place at intervals of years . . . sometimes complicated by the fact that . . . there were often changes in staff.' A regular 'drill' should be worked out and cleaned, and moved, at fixed intervals and their condition reported and recorded. This might be shown on the maintenance chart—which incidentally might well bear the caption which so amused Mr. Ault: 'Avoid your first accident and you will not have a second.'

GAS GALLERY

Our pages this week carry an account of the official inauguration by the Marquess of Salisbury, Lord President of the Council, of the Gas Gallery at the Science Museum, South Kensington. So has culminated, in favourable circumstances, the result of many years' painstaking effort directed to a permanent exhibition of the evolution of the British gas industry from its birth to the present day. Features of Gas Gallery are its high artistic merit, the effective application of modern exhibition technique, and the fine craftsmanship to be discerned through every part of this important and impressive national exhibit. The gas industry has already enjoyed a long and an honourable career. It has established a service to the nation with unfailing regularity and often under the most difficult possible conditions. All portents are that the industry, never so strong and so potential as now, will, with the exercise of the new scientific, technical, and administrative assets at its command, flourish abundantly in the years to come.

The Gas Gallery itself is not without history; and we epitomise part of the story which has brought to fruition this effective show. It was in 1936 that a movement was introduced to provide an educational exhibit worthy of the magnitude and status of the gas industry. The Science Museum is today used more and more for educational purposes. Yearly about half-a-million people, mainly young and impressionable, visit this fount of visual information. Every year there are thousands of organised parties from schools, and thousands of special lectures are given. The importance of an attractive exhibit of what the gas industry means to the nation, and how it has developed, have fittingly been recognised. After all, the gas industry has a fascinating story to tell. In 1947 an appeal was issued by the British Gas Federation for contributions to defray the cost of the work and for gifts of models of historic and educational interest. Outbreak of war meant postponement of this wholly admirable plan. On cessation of war, resumption of the plan, necessarily in modified form, was made. In December of 1946, in succession to the late Mr. Thomas Hardie, the late Mr. D. M. Henshaw was elected Chairman of the Committee (the) under the auspices of the British Gas Council) set up to deal with the matter, and the whole project was reviewed in the light of the changed circumstances brought about by the war. An Executive Committee was elected, with the late Mr. Dean Chandler as Chairman.

The money promised by those interested in the Gallery project before the war had naturally lost its original purchasing power. In consequence drastic modification of the original plan became inevitable. Among the decisions reached at the end of 1946 was that efforts should be made to complete the gas manufacture side of the exhibit, leaving the distribution and utilisation material until later. The immediate plan was adopted to show by a series of dioramas (with additional models provided to make clear to the more technically-minded visitors details which cannot readily be shown in dioramic form) the development of the gas industry in this country from its earliest days up to the year 1920, when it became a heating rather than a lighting industry. The diorama is a most valuable type of exhibit. The dioramas now on view at the Science Museum compel attention. They present a vivid pictorial impression which makes an immediate appeal to visitors. As a whole, the exhibit now revealed to view is an arresting record of the wonderful achievements in a field of industry that can claim to have contributed in no small measure to the greatness of our country.

As it stands today, the Gas Gallery is a remarkable example of co-operation on every side of the gas industry. The outcome embodies the determined effort of the manufacturers of gas-making plant, of the firms who cater for the distribution of gas, and of the many private enterprises responsible for the production of safe and efficient gas-consuming appliances in every sphere of gas usage. We feel sure that this educational exhibit of the gas industry at the Science Museum, South Kensington, will help recruitment of keen and imaginative youth to an old-established, yet essentially modern, national industry.

NATURAL GAS IN PAKISTAN

Natural gas prospects in Pakistan are improving, and early estimates of reserves have been increased. In his statement issued with the accounts of the Burmah Oil Co., Ltd., whose annual meeting will be held in Glasgow on June 11, Sir Kenneth B. Harper announces that a test well at Zin, the second in a group of structures of which Sui was the first, has indicated a large volume of gas-bearing limestone but no oil. The gas is at such low pressure as to be of no commercial value. A seismic survey of the third area in the group, at Uch, has just started. A year ago the discovery of a major natural gas field at Sui was reported. After the second well had been completed the gas reserves were estimated at 2¼ billion (English style) cu. ft. The third well is nearing completion, and has indicated that this estimate will have to be increased. The second and third wells are eight miles apart, with the first well between them. Plans to utilise this gas have gone ahead with the enthusiastic help of the Pakistan Government. The Sui Gas Transmission Co. Ltd., has been formed to take delivery of the gas from Pakistan Petroleum Ltd., at Sui for transmission to major

consuming centres. The Transmission Company will lay a 350 mile pipeline from Sui to Karachi at a cost of about £9 mill. and it is expected to be in operation by the middle of 1955. It is hoped that this source of plentiful and cheap fuel will prove of benefit to Pakistan and a good investment for the Company.

PROFIT SHARING

Subject to the approval at the annual meeting on June 7 of the capital reorganisation scheme of Imperial Chemical Industries, Ltd., some 75,000 of the Company's 97,000 workers in Britain will benefit by a profit sharing plan which is estimated to cost £1 mill. in its first year. The basis of the scheme is that every year 1% of an employee's annual earnings will be paid to trustees for every 1% paid on the ordinary shares of the Company over 5%. Last year the Company paid a dividend of 5%, but as the reorganisation scheme will have the effect of doubling the capital it may be assumed that this year's dividend might be 7½%. Money held by the trustees on behalf of employees will be used to buy ordinary shares in I.C.I., and when £25 units have been bought the block can be transferred to the holder, who may sell them. Assuming an ordinary dividend of 7½% an employee earning £600 a year would receive a bonus before tax of £15. The directors say in their report that they believe employees will feel they have a stake of substance in the fortunes of the Company which they will wish to retain. The scheme will not form part of the contract of employment nor will the benefits under it form part of contractual wages or remuneration. The principle of the profit sharing scheme is similar to that which actuated the many co-partnership schemes which worked so well in the gas industry before nationalisation, but it differs in the sense that the workers' holding in the Company is in the form of ordinary shares, disposable at will, instead of a special class of employees' stock which did not carry quite the same measure of freedom. The threat of nationalisation has hovered over I.C.I. for some years, and the announcement of the new scheme follows a few months after the issue to the whole of the employees of a full statement of the Board's answer to the challenge of nationalisation. Sir Ewart Smith, Technical Director of the Company, said at a Press conference that the Board believed that although the scheme would not perhaps influence day-to-day output it would provide a very firm basis for a better understanding not only of what the Company does, but of the whole industrial process.

WAGE INCREASES

Two statements concerning wage increases were issued from Gas Industry House last Thursday. The first stated that agreement had been reached between the Gas Council and the Confederation of Shipbuilding and Engineering Unions providing for an increase in wages of 2½d. an hour for works maintenance craftsmen employed in the gas industry. The increase takes effect as from 6 a.m. on Sunday, May 2.

The second announcement stated that at a meeting of the National Joint Industrial Council for the Gas Industry held that day, it was agreed to increase the standard scheduled rates of pay for all adult male gas workers by 1½d. an hour as from 6 a.m. on Sunday, May 30.

Personal Notes

SIR ERNEST SMITH, C.B.E., D.SC., F.R.I.C., F.INST.F., M.INST.GAS E., has been elected President of the Society of British Gas Industries for the ensuing year, with MR. J. SIMPSON (Woodall-Duckham Construction Co., Ltd.), as Chairman of the Council. Sir Ernest, who attained his 70th birthday on February 13 of this year, has served the gas industry in very many ways over a long period of years. Educated at Arnold School, Blackpool and Manchester University (Honours School of Chemistry 1905), he was Chemist to the Saskatchewan Coal Dredging and Platinum Extraction Co., 1906-7; Research Chemist Institution of Gas Engineers, Gas Heating and Ventilation Committee Leeds University, 1908-10; Physicist in charge Industrial Gas Laboratories, Birmingham Gas Department, 1910-11; Chief Chemist Birmingham Gas Department, 1912-20; Initiated benzole extraction under Lord Moulton, 1915; Technical Director of the Woodall-Duckham Companies, 1920-1944; Director General, Gas Supply, to the Board of Trade and the Ministry of Fuel and Power, 1942-3; Technical Advisor to the Area Gas Supply Committee of the Board of Trade, 1929; Hon. Secretary of the World Power Fuel Conference, 1928; Chairman of the Society of British Gas Industries 1931-2; Fuel Consultant 1944 to date; President Institute of Fuel, 1943-5; Life President of the Arnold Schools, Blackpool; Member of the Public Schools Governing Bodies' Association; for some years Member of the Gas Research Board; Chairman to date of the Coal Carbonisation Plant Committee of the Ministry of Supply; Chairman to date of the Industrial Coal Consumers' Council; Member of the Fuel Research Board; Technical Advisor (Coke Ovens) to the District Valuation Boards of the Coal Industry; Member of the Board of Studies (London University) in Chemical Engineering; Member of the Education Committee of the Ministry of Fuel and Power; Honorary Member of a number of District Gas Associations and the Coke Oven Managers' Association; Original member and President and Treasurer of the National Smoke Abatement Society (1954); President of the Effingham Cricket Club; Silver Medal Institution of Gas Engineers 1912; Birmingham Gold Medal 1943; C.B.E., 1930; Knighted, 1947.

Sir Ernest Smith.

Mr. J. Simpson.

MR. J. SIMPSON, who has been elected Chairman of the Council of the S.B.G.I., was educated at Allen Glen's school, Glasgow, and served a pupilage at Robert Dempster & Son, Ltd., of Elland. During the 1914-18 war he was a Pilot Officer in the Royal Air Force. He was Chief Assistant Engineer and Manager of Greenock Gas Department. He joined the Woodall-Duckham Company in 1926 and was appointed a Director in January, 1946. Mr. Simpson is also a Director of Woodall-Duckham, Ltd., and Chairman of Stourbridge Refractories Co., Ltd.

He is also a Member of the Institution of Gas Engineers.

MISS JOAN LANGLEY, Westbury-on-Trym, Bristol, has, following the reorganisation within the South Western Gas Board, been appointed Chief Home Service Adviser to the Board. She will operate from Radiant House, Bristol. Miss Langley joined the old Bristol Gas Company in 1946 as Chief Demonstrator. Following nationalisation she became Senior Home Service Adviser to the Northern Division of the South Western Gas Board and Head of the Bristol Sub-Division Home Service Department. She was educated in London and trained at the Gloucester Training College of Domestic Science. Before joining the Gas Company she held Domestic Science posts with the Birmingham Corporation and the Gloucestershire County Council.

Obituary

MR. CHARLES HESLOP, a Director of the Bishop Auckland and District Gas Company, before nationalisation, has died at Barnard Castle, aged 77.

MR. D. N. HUTTON, who since 1944 has been Chief Construction Engineer (Gasworks) of Woodall-Duckham Construction Co., Ltd., has died after a short illness. Mr. Hutton, who was 58, joined the Company in 1920, and until 1944 was responsible for the site supervision of the construction of many carbonising plants throughout the country. He was a Member of the Institution of Gas Engineers and well known to many engineers throughout the gas industry.

Gas in FRANCE

abstracts from the French technical press by 'ASHTON'

To the March and April issues of *Journal des Usines à Gaz*, M. A. Bolzinger contributes a critical appreciation of recent work in Great Britain on the orthodox dry oxide purifier. His survey ranges from the 1944 paper by Clayton, Williams, and Avery to Comm.G.C.7 by Dr. L. H. Moignard, a total of 17 references. It is in two parts covering the technical considerations and the practical instructions for the operation of purifiers. In the former M. Bolzinger makes an important remark on the question of humidity, emphasising a point which he thinks arises perhaps insufficiently in the work of Dr. Moignard. It is by design that M. Bolzinger uses the phrase 'suitable conditions of humidity' rather than 'moisture content'. The latter is not a sufficient criterion because, for reasons which are not clear, materials apparently sufficiently moist may not be very active, while materials with 5% to 7% moisture content may be perfectly satisfactory—particularly in tests with fluidised materials. M. Bolzinger goes on: 'Thus, materials which have been dried and have then been re-humidified, have not necessarily re-acquired the necessary condition, and . . . meticulous precautions must be taken when materials are taken from the boxes to avoid a too-rapid revivification which may dry them and destroy their activity which is not necessarily restored by re-humidification. No doubt the water, to be effective, must get well into the pores of the material and be intimately incorporated with it, but I prefer to say nothing on that point.'

Summarising the essentials of the technical considerations, and with particular reference to humidity, M. Bolzinger remarks that 'the maintenance of these conditions depends first on the degree to which purifiers are able to dissipate through their walls a portion of the heat evolved.' But if it is true that the degree to which they are capable more or less of dissipating this heat will condition their performances, this is only precisely true if the action of the material is homogeneous. 'It is necessary therefore, not only to have purifiers capable of dissipating plenty of heat, but equally to make them work in a manner as homogeneous as possible'. To secure these conditions M. Bolzinger's department have designed and put to test a purifier with fixed beds, but fluidised in the beds (therefore continuously homogeneous in action), cooled by water tubes to dissipate the heat.

In the second part of his contribution M. Bolzinger examines in turn the 'working instructions' which have been proposed for the operation of purifiers. This is followed by a close analysis of the influence of different factors on the loss of moisture by purifying materials in a portion of the purifier presumed to work homogeneously where the gas enters and from which it emerges saturated, heat exchanges between gas and materials being considered negligible. His conclusion is that the heat dissipated by purifiers and consequently the loss of moisture content of the oxide will depend above all on the ambient temperature, and it does not appear to be possible sensibly to modify these losses by operating on the temperature of the entering gas which can be kept at about the same level as the ambient temperature.

A Natural Gas Grid

MM. Boulard and Callais, of the Regie Autonome des Pétroles, describe security measures adopted in the transmission of natural gas over a grid system extending from Bordeaux to Toulouse and westward to Tarbes and Pau towards the Spanish frontier, a total length of 800 kilometres (say, 515 miles). This network, commenced 10 years ago, has been in full operation for more than three years. It is constructed in steel tubes designed for a maximum working pressure of 60 kg per sq. cm. (853 lb. per sq. in.). The article is illustrated by a map and photographs. It constitutes a survey of the practical rules evolved in an experience acquired over 10 years work in the production and transmission of natural gas. The first in France, this network has been an innovation in the high pressures used, the technique of putting into operation, and the rapidity of its construction. The search for improvement, still possible, in measures for the prevention of accidents, and training of personnel, will continue to receive the attention of those responsible for the supply, without interruption, of natural gas to the towns and industries of South West France.

Phenol and Effluents

To the April issue of the French Journal, M. L. Taubert, of the Chemical Branch of the Research Department of Gaz de France, contributes a comparative study of different methods for the determination of phenol traces in the control of effluent treatment. 'If the determination of phenol traces . . . is not in itself a difficult operation, this is not true of the interpretation of the result obtained for the following reasons. In the first place, the diversity of phenols which can be met with in gasworks effluents is great. Their respective properties are very variable; they depend upon the type of retort, on the coal treated, on the conditions of carbonisation, condensation, and treatment of the gas. The different methods of determination are based on the reactions given by the phenol 'function'. But the molecular weights of the different phenols vary considerably. Thus if phenolic acid has a molecular weight of 94.1, those of the cresols, xylenols and naphtols, are respectively 108, 112.1, 144.1, and consequently, as one never knows the relative proportions, there is a preliminary difficulty in the expression of the result.'

In the second place, the reactions used are colorimetric and the colorations vary with the constitution of the phenol. And finally the uncertainty of determination is increased by the fact that it is often impossible to make tests direct on the sample because of the presence of compounds which can give parasitic reactions. It is then necessary to proceed to separations, which may result in phenomena of adsorption which are not negligible in a dilute solution.

M. Taubert 'examines rapidly' seven methods which have been proposed for the determination of traces of phenols. He sets out the characteristics of these methods in a comparative table, the examination of which, he suggests, shows that there is today no universal method presenting an undisputed superiority in all cases. His bibliography contains 12 references and he appends brief descriptions of three other methods.

Coal in France

Statistics for 1953 are now sufficiently known to discern the principal characteristics of the year's working. Real production fell slightly from the 1952 results, due mainly to strikes. Total tonnage for France plus the Saar was 71 mill. tonnes against 73.6 mill. in 1952. Importation fell

from 15 to 11.3 mill. Importation of coke (principally for steel-making) fell also, and it is noted that the reduction in consumption was accentuated in each successive quarter of the year. Exportations of coal from France and the Saar increased from 5.79 to 7.36 mill. Taking both into consideration it appears that in quantity—but without taking into account quality—French production would have sufficed very nearly to meet the national consumption. Gaz de France used, in 1953, 5% less coal than in 1952. Plethora of coke was one of the features of production in 1953.

News Items

M. Paul Leclers is retiring from his position of Joint Director-General of Gaz de France and has been nominated Honorary Joint Director-General. His official position is to be taken by M. Kuhn de Chizelle.

Gaz de France gave a Press Conference in Paris at which M. Le Guellec, President of the Council, M. Combet, Director-General, and M. Kuhn de Chizelle, the new Joint Director-General, outlined their policy.

The 71st Congress called by the Association Technique de l'Industrie du Gaz en France will take place in Paris from June 21 to 26. As usual, a very large number of papers, 32, will be presented.

M. Marcel Chain contributed an excellent paper on 'Furnaces with Controlled Atmosphere' to the Ste. de Ingénieurs Civils de France (Fascicules 7 to 9, 1953). The theory of the subject is admirably set out and numerous applications covering a wide range of metallurgical industries are described and illustrated. The advantages of gas as the fuel were very forcibly put forward.

M. Georges Houdvaille, Research Department, Gaz de France, presented a paper in Paris (Chimie et Industrie, April, p. 713) reporting tests on the 'pre-filtration of town gas through half-spent activated carbon with a view to reducing the fouling of this material in benzole recovery.' The operation, which consists simply in the introduction of one or several pre-absorbers using half-spent activated carbon, is not difficult. The gain in recovery is considerable. The benzole obtained is lighter (containing less styrolene and therefore more benzene) but the ethylene content is a little higher, which is not necessarily undesirable.

Long Service in Scotland

Recognition of the service given by five employees (all over 40 years in the industry) was made by the Lanarkshire Division of the Scottish Gas Board at a function at Bothwell. The employees honoured were Mr. Alex. Dunlop, district accountant, Coatbridge; Mr. Thomas Stewart, district manager, Lesmahagow; Mr. James Dempster, charge-hand plumber, Motherwell; Mr. Robert Lindsay, hammerman, Hamilton; and Mr. Robert Morgan, collector, Coatbridge.

In handing over gifts, Mr. D. D. Burns, Deputy Chairman of the Scottish Board, who was accompanied by Mr. Charles Murdoch, Chairman of the Scottish Board for Industry and a member of the Gas Board, complimented the recipients on their valuable service to the industry and conveyed to them best wishes on behalf of the Board.

Mr. Dunlop, who received a gold wrist watch, entered the service of Coatbridge Gas Company in 1912 as a junior clerk. Three years later he was appointed chief clerk and cashier, and in 1948 was promoted to the post of secretary of the company. Mr. Stewart, who also received a gold wrist watch, began his service under his father at Strathaven in 1912. He remained there until 1921, when he was appointed manager of Douglas Gasworks. He took over charge of the Lesmahagow undertaking in 1938. Mr. Stewart is a member of a family which has given about 350 years aggregate service to the industry.

Mr. Dempster, whose gift was a grandmother clock, began work as a plumber-gasfitter with the Garfin Gas Company in 1910 and remained there for seven years before going to Motherwell. He has been resident fitter at Wishaw since 1928 and is responsible for the maintenance work of that district.

Mr. Lindsay, who received a chiming clock, entered the service of the Hamilton undertaking in 1910 as a gas worker. For a long period he was hammerman to the blacksmith. He retired two months ago.

Mr. Morgan, whose gift was a chiming clock, joined the service of Coatbridge Gas Company as an office boy in 1903. Later he was transferred to the works for clerical and technical duties, and in 1922 he joined the collection staff. His service to date totals 51 years.

Diary

June 3.—SOUTH WESTERN G.C.C.: 34, Bridge Street, Taunton, 11 a.m.

June 3.—MIDLAND JUNIORS: Ladies' Day.

June 5.—SCOTTISH JUNIORS (EASTERN): Annual Outing, Leven.

June 12.—MANCHESTER JUNIORS: Visit to Burnley Gasworks. 'The Design and Performance of 0.5 mill. cu.ft./day Tully Carburetted Complete Gasification Plant,' G. R. Spence, G. Wheatman and I. J. Hartill.

June 14.—NALGO CONFERENCE: Meeting of Gas Staffs. Scarborough.

June 15-18. — NATIONAL AND LOCAL GOVERNMENT OFFICERS ASSOCIATION CONFERENCE: The Spa, Scarborough.

June 15. — LONDON AND SOUTHERN SECTION, I.G.E.: Summer Meeting.

June 18.—SCOTTISH JUNIORS (WESTERN): Golf Outing.

June 19.—LONDON JUNIORS: Ladies' Day at Hastings.

June 22-25.—ROYAL HIGHLAND AGRICULTURAL SHOW: Dumfries. Gas Council exhibit.

June 24.—NORTH THAMES G.C.C.: Caxton Hall, Westminster, 2.30 p.m.

June 25.—MIDLAND SECTION, I.G.E.: Summer Meeting. Nottingham.

June 26.—MANCHESTER JUNIORS: Ladies' Day at New Brighton.

Calendar & Directory

ALTERATIONS

THE following changes have been notified during the past month. To keep the information in the current 1954 edition of the GAS JOURNAL CALENDAR AND DIRECTORY up to date readers are invited to note these alterations (together with the appropriate adjustments relating thereto in the 'Personnel' section of the DIRECTORY, pp. 138-150).

Page 22.—EAST MIDLANDS GAS CONSULTATIVE COUNCIL: Delete Alderman C. R. Bates, O.B.E., J.P., *Chairman*, retired.

Page 27.—EAST MIDLANDS GAS BOARD: Delete Alderman C. R. Bates, O.B.E., J.P., *part time member*, retired.

Page 53.—NORTH THAMES GAS BOARD: B. H. Tebbutt, *Surveyor*, vice G. M. Hooper, resigned; add F. G. M. Watson, *Assistant Surveyor*.

Page 76.—BERWICK-ON-TWEED: F. B. Keillor, *E.*, vice R. F. D. Pawley (whose appointment to Iron Bridge has already been announced).

Page 117.—WEST MIDLANDS GAS BOARD: Add E. J. Gammon, *Assistant Medical Officer*.

Page 128.—SHOTTS: Delete J. B. Wilson, *Dist.M.*, removed.

Page 129.—COMRIE: Delete F. B. Keillor, *Dist.M.*, removed.

Page 131.—NAIRN: J. B. Wilson, *Dist.M.*, vice D. M. Rowan.

Page 133.—LANARKSHIRE: Add A. Mitchell, *Div. Distribution Engineer*.

Echo of 150 Years and More

Gas Gallery at the Science Museum

Tuesday of last week saw the opening by the Lord President of the Council, the MARQUESS OF SALISBURY, K.G., P.C., of the permanent exhibition of the gas industry at the Science Museum, South Kensington. With the Minister of Education, Miss Florence Horsburgh, P.C., C.B.E., in the chair, supported by Colonel Sir Harold Smith, K.B.E., D.L., Chairman of the Gas Council, Dr. F. Sherwood Taylor, Director of the Museum, and Mr. F. M. Birks, C.B.E., Deputy Chairman of the North Thames Gas Board and Chairman of the Gas Gallery Committee, the inauguration took place amid a distinguished gathering of gas industry executives, engineers, research workers, and educationists. Several area board chairmen were present. The Marquess of Salisbury, paying tribute to the gas industry for this national educative effort, mentioned the possibilities of atomic energy coming to the forefront for power production during the coming half-century. But, he added, the gas industry was in fact a chemical industry treating coal for the production of a multitude of essential by-products and chemicals. Whatever the future had in store, the gas industry would thrive as one of the nation's great and most important assets.

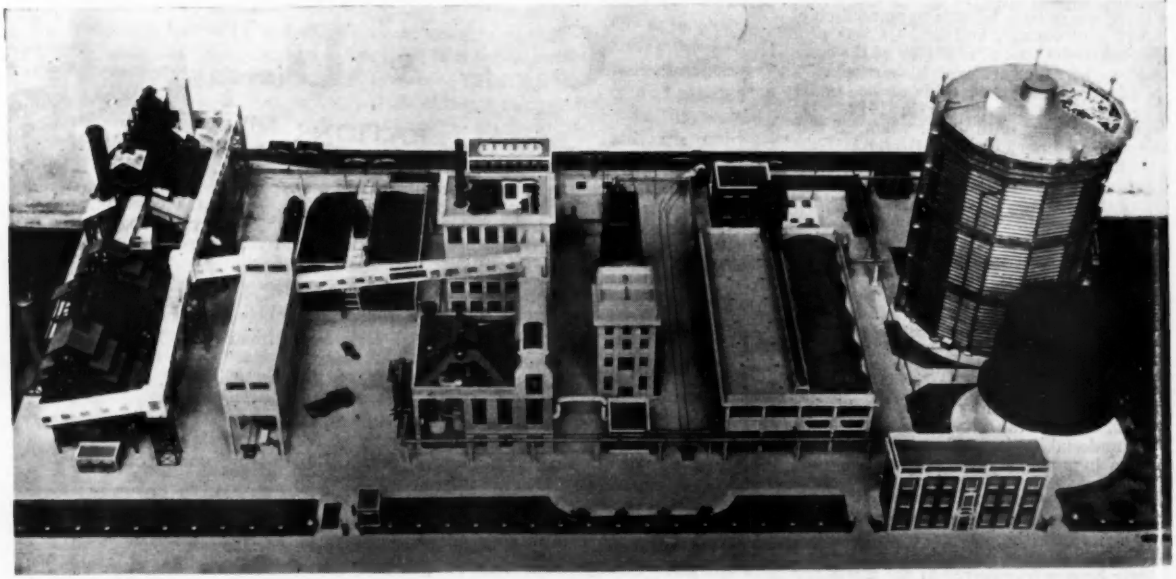
One of six historical dioramas in the Gas Gallery. This particular diorama shows George Difion producing gas in a kettle in which he placed some coal. Gas is issuing through the spout and has been ignited.

The Basis of Many Industries

Following the opening remarks of the Marquess of Salisbury, Colonel SIR HAROLD SMITH gave a short address outlining the gas industry's intentions regarding the 'Gas Gallery' and the evolutionary endeavours which had brought the project to such successful fruition. The gas industry had, Sir Harold remarked, reached the not unimpressive age of 150 years. However, unlike human beings and machines, each year added to the total had not meant a falling-off in its powers or a deterioration in its efficiency. On the contrary, the years had given it strength, and its history has been one of unbroken development and expansion. Today it was a modern industry, alive, energetic, and progressive; and certainly it had never performed such valuable and far-reaching services to the community as it did at the present time. About 11 out of every 13 homes in the country used gas for one purpose or another; in industry its applications covered some 4,000 different processes needing heat, including operations involved in the manufacture of the most modern aircraft; and the by-products of gas manufacture preserved for the nation raw materials on which whole industries—plastics, dyes, fertilisers, and many more—had been built up.

Continuing, Sir Harold explained that it was now nearly 20 years since the first idea of a permanent gas exhibition at the Museum was discussed, and he would like to pay tribute to some of the people in the gas industry whose drive and enthusiasm had been largely responsible for the planning and equipping of the Gallery. Three of them were no longer with them. First, he must mention Thomas Hardie, who was Chief Engineer of the Gas Light and Coke Company in 1936 when he was appointed to the Advisory Council of the Museum; then there were Dean Chandler, of the South Metropolitan Gas Company, and D. M. Henshaw, of W. C. Holmes & Co., Ltd. All did much useful work before the war came along to interrupt their plans.

After the war, the detailed work of laying out the Gallery was remitted to a Committee appointed by the Institution of Gas Engineers under the chairmanship of Mr. F. M. Birks. He believed he was right in saying that the series of animated wall-panels which illustrated various aspects of



This scale model of a modern gasworks is now on permanent display at the Science Museum's new Gas Gallery, which was opened on May 25 by the Marquess of Salisbury, Lord President of the Council. It is one of the many fine scale models on show which are supported by illuminated and animated panels showing the operation of the varied plant in a modern work..

gas-making were the result of Mr. Birks' inspiration. There was, too, Mr. E. G. Stewart, late of the Gas Light and Coke Company, on whose willing shoulders much of the detailed work had fallen. And he must express the gratitude of the gas industry to the Director and other officials of the Museum—their ready co-operation had been of the greatest help—and to the Ministry of Works architects and designers who had materially assisted in the preparation of the Gallery. He would also like to make special mention of Colonel E. E. B. MacIntosh, who was Director of the Museum when the project was first conceived. Colonel MacIntosh, who was unfortunately prevented from being present at the opening ceremony that day, had throughout many years warmly supported the idea and gave encouragement to the careful and meticulous work involved. Finally, he thanked the gas undertakings and manufacturers of plant and equipment who have so generously helped by donations or the gift of models.

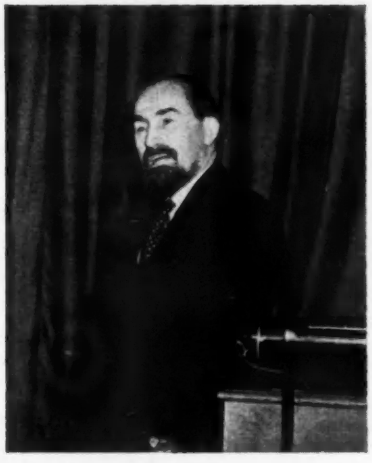
The gas industry had been built up on the use of coal. Today, however, it could no longer obtain coals of the right quality in the quantity it needed, and it was having to investigate other methods of gas production. Recent research had opened up several interesting possibilities such as the gasification of heavy oils, the use of petroleum gases, and the extraction of methane from mine-workings. Explorations for natural gas were also being carried on. In a few years perhaps the Gas Gallery might need extending to cover these new developments. Until that time he hoped it would prove an instructive and interesting addition to the Museum's educative exhibits by giving to visitors a graphic impression of the part which the gas industry played in the life of the nation.

Following Sir Harold Smith, DR. SHERWOOD TAYLOR, Director of the Science Museum, extended a welcome to those present and expressed his personal gratification that the Museum should now be in a position permanently to house such a valuable and, indeed, unique exhibition representing the evolution of the gas industry since its inception. The Gas Gallery was a triumph in the art of visual education; and he believed it was the first time an industry as a whole had planned and executed such an effective exhibition. In conclusion, he would say how impressed he had been with the extremely high standard of craftsmanship which had gone to the building up of this outstanding, composite, comprehensive exhibit.

An Artistic Cyclorama

Prior to the official opening ceremony there was a Press preview on the Monday, when MR. F. M. BIRKS, as Chairman of the Science Museum Gas Gallery Committee of the Institution of Gas Engineers, welcomed and addressed the many journalists present. In the course of his explanatory comments he mentioned that the piped supply of water was the first public utility service to be introduced to a civilised community. It dated far back into antiquity, and for many centuries a water supply remained the only public service. The public supply of gas came at the beginning of the nineteenth century, continued Mr. Birks; and though many countries took an interest in the possibility of using gas for lighting, it was undisputed that gas as a public utility started in England. Prior to the introduction of gas in this manner, plants for the manufacture of gas for the purpose of lighting factories and other large buildings had been commercially marketed by Boulton and Watt, of Soho, Birmingham. The Chartered Gas Light and Coke Company was actually in operation in 1812, and was the first concern in any part of the world to supply gas to the general public.

The idea lying behind the Gallery was to show the progress of the gas industry during the past 140 years in four forms, namely:—



The Director, Dr. F. Sherwood Taylor, speaks for the Science Museum and welcomes the guests.

The Marquess of Salisbury wishes the venture the success it deserves. Left to right: Mr. F. M. Birks, the Marquess of Salisbury, the Minister of Education, Colonel Sir Harold Smith, and Dr. F. Sherwood Taylor.

Left to right: Mr. J. H. Dyde (Deputy Chairman, E.G.B.), Mr. H. F. H. Jones (Deputy Chairman Gas Council), Mr. W. K. Tate (Vice-President, Institution of Gas Engineers), and Mr. C. H. Chester (Chairman, S.W.G.B.).

(i) A cyclorama which traced the history of industry in a most attractive and artistic manner. This, he thought they would agree, should catch the eye of those of the public who had not necessarily come to the Museum with the purpose of inspecting the Gas Gallery.

(ii) Secondly, there was a series of dioramas which showed the life of people and the conditions they worked under.

(iii) Thirdly, there was a comprehensive series of models of plant, for which the Museum with gratitude acknowledged the many donors.

(iv) These exhibits were of undoubted interest to technicians and those already engaged in the industry. The Committee fully realised, however, that it might not be easy quickly to assimilate from them the somewhat subtle changes that had occurred in the operation of the plant. So it was decided to have a series of illustrated panels so that young or non-technical people should be able readily to grasp the changes in technique that had taken place during 140 years. Starting at the earliest example and working along the panels, it would be noted that they were illuminated with coloured lights indicating the temperature of the various flues, retorts, etc.

When all the panels were illuminated it could be seen that the temperatures used had steadily increased as the original cast-iron retorts gave way to fireclay retorts and in turn to the use of silica as a refractory, each of these developments having increased the rapidity of heating the coal and the output from individual units. In correct sequence there was demonstrated the carburetted water gas system of gas manufacture, which had been in use for over 50 years. As the industry was now engaged in research on several other methods of manufacturing town gas, it had been thought prudent to leave a spare panel or two in order to include future development. This, Mr. Birks concluded, was the first time such a method of presentation had been used for the purpose.

The Extent of the Exhibition

The display occupies some 5,000 sq. ft. in a newly-finished wing of the Museum. As mentioned, it was organised by a Committee of the Institution of Gas Engineers. The Gas Council, various manufacturing interests, and the Science Museum are represented on this Committee. The Gallery is executed in modern (yet attractive) style. The composite exhibit illustrates the beginnings of the making of gas, first for lighting and then for heating. Its industrial uses are exemplified by by-products of coal created through the gas-making process. It is designed to interest both layman and expert.

A series of realistic dioramas shows some of the early experimenters at work. There follow models of representative retort houses at various dates up to the present day. A cyclorama running the whole length of the gallery depicts in lively form London's gas-lighted streets in 1812, the gas-lit scene at a Mansion House ball as long ago as 1830, private house lighting 30 years ago, and the advent of the incandescent mantle 64 years ago. Models representing gasworks in 1890 and 1950 show the progress of the machinery for gasmaking. And, as recorded in this report of the opening ceremony and of the Press preview, illuminated panels, operated by push buttons, show by animated diagrams the various stages in the extraction of gas from coal, how it is distributed to the consumer, and what happens to the by-products.

In short, the Gallery provides a vivid survey of the story of gas.

At the price of 6d., the Gas Council has issued a *Brief History of the Gas Industry* which records in brief some of the salient factors in the development of the manufacture and distribution of town gas. The booklet is, in fact, a useful guide to the Gas Gallery.

A BRATT COLBRAN INSTALLATION IN BRUSSELS

A recent gas-fired industrial radiant unit installation by Bratt Colbran, Ltd., placed on the Continent, is in the works of D'Ieteren Freres, at Forest, Brussels, producing Volkswagen family and commercial vehicles. There are three separate tunnels—one for drying after pre-treatment on spare parts, another for stoving the finished coat on spare parts. The third, illustrated above, comprises 84 units and is for stoving undercoat on complete car bodies, the finished coat being cellulose. This, we are informed, is the first time that a gas-fired infra-red tunnel has been used in Europe for stoving complete car bodies. The output of cars from the works runs to 18,000 per year.

C.W.G. IN NORTH THAMES

CHAIRMAN'S ADDRESS TO THE LONDON AND SOUTHERN SECTION OF THE INSTITUTION OF GAS ENGINEERS ON MAY 18, 1954, BY

J. BURNS,

G.M., B.Sc., Ph.D., F.Inst.F., Chief Engineer, North Thames Gas Board.

The story of carburetted water gas in the North Thames Gas Board starts as far back as 1890 when the then Chief Engineer of the Gas Light and Coke Company proposed to his directors that the Company should investigate the new process of gas manufacture which was being established in America. The directors decided to send Mr. Trewby, the Station Engineer at Beckton, to investigate at first hand this novel process, and Mr. Trewby's report was favourable in the extreme. It is interesting, incidentally, to read from the directors' minutes that one of the most inviting advantages of the new process was its use of coke as a raw material—the first step in the control of coke availability and the very first step in complete gasification. During that same year, work was started at Beckton on the construction of the first water gas plant ever built in this country. One can imagine the fears and the worries with which the engineers of that time approached this new machine, for it was an entirely novel conception of gas manufacture, and some credit is due to their doggedness in helping to establish the water gas process in this country as part of normal gas manufacture.

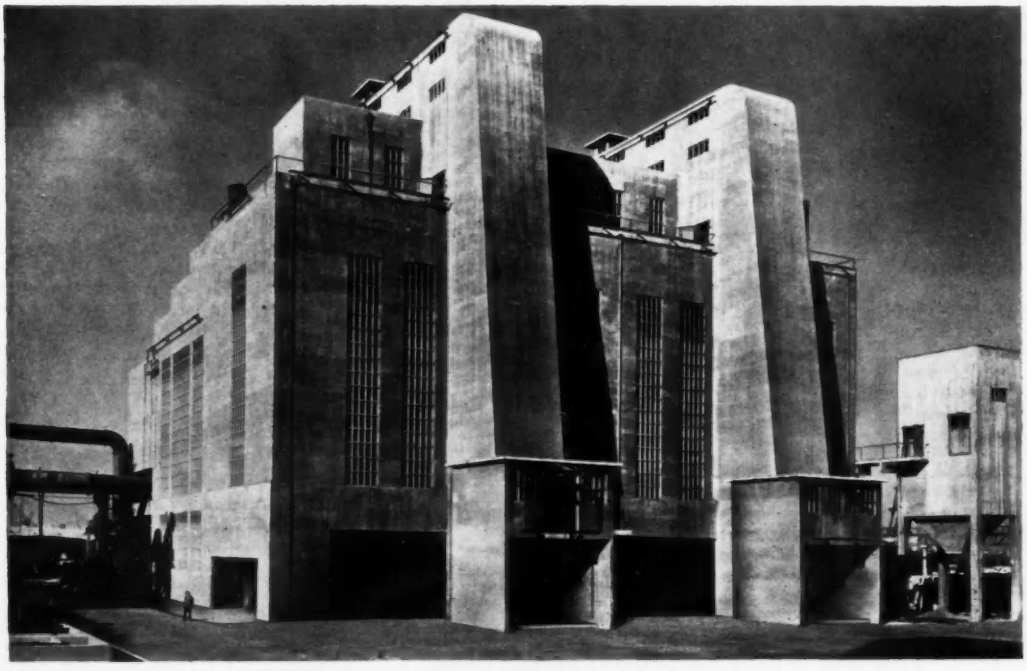
The first water gas sets were crude by modern standards. Nevertheless it is surprising how many of the old, original water gas sets still exist up and down the country and in the North Thames Gas Board. This is indication, if nothing else, of the sturdiness of the plant as a whole. The original plants were hand-clinkered and all the valves were operated by hand.

There was an increasing use of the water gas process during the first 20 years of the century, and the next major development was the application of automatic control to the various sequences of valve changing. The 'Auto' is surely one of the most ingenious pieces of mechanism in the gas industry. I believe that one of the first 'Auto' sets was installed at Beckton in the early 'twenties. There followed shortly afterwards the development of the mechanical grate for the removal of clinker from the generator. I understand that the first automatic grate, which is indeed a masterpiece of ingenuity, was installed at the Brentford works of the Gas Light and Coke Company. This grate was water sealed, and was the forerunner of a design which has, undoubtedly, found the widest general application to water gas manufacture throughout the country. It is of interest, however, to note that the first dry-sealed grate appeared only one year after the first water-sealed grate.

Large-Scale Application

The stage was set then in the early nineteen-twenties for the large-scale application of this new process of gas manufacture which by this time included the gasification of oil for enrichment purposes. The advantages were many and apparent, particularly the flexibility of operation with the ability materially to increase the gas output from a works at short notice. This led to the industry's ability to take on additional loads and additional types of load, and one cannot help wondering whether the peak load problem, if problem it is, really originated in the development of the carburetted water gas process with all its flexibility. Whichever came first, the peak load or one of the means of meeting it, there is no doubt that the carburetted water gas process has played a very prominent and useful part in supplying our customers' needs at seasonal and peak load times. The value of the process to control the coke market became increasingly important and much successful work has been done on the gasification of different grades of coke to regulate the availability of any particular grade.

The water gas process became the subject of intensive



The completed Humphreys and Glasgow plant at Beckton

research and study, and in much intensive effort the work of Dr. Dent on 'The Controlled Operation of a Carburetted Water Gas Plant'—I.G.E. Publication 101/10, is outstanding. Of great value was the work of Dr. Pexton in determining methods for assessing the efficiency of operation on water gas plants in his paper on 'The Assessment of Gas-making Results' (J. Inst. Fuel, 1935, *8*, 200.) The work of Dr. Griffith (J. Soc. Chem. Ind. 1929, *48*, 252) in developing methods for the assessment of the value of oil for enriching purposes has been of fundamental value to the industry.

The First Dry Sealed Grate

In course of time, and especially with the development of mechanical operation of the water gas plant, there came greater appreciation of reliability and of repair and maintenance costs and a need to keep these as low as possible. There were difficulties associated with the water-sealed grate where conditions of wet ash and breeze were ideal for corrosion, and the next landmark in the story of carburetted water gas plant in the Gas Light and Coke Company appeared in 1931 when Thomas Hardie, then Chief Engineer, recommended the installation of a dry-sealed grate to obviate some of the corrosion difficulties. At that time the industry was not aware of the full possibilities of the dry-sealed grate, especially on the point of operation at high blast pressures. The first dry-sealed grate soon ran into quite serious troubles, for the process became much more sensitive to changing conditions of operation and, in particular, there was an increased tendency to clinker formation. But all these troubles were very much a question of operational control; and soon, under tuition, there developed a new type of carburetted water gas operator who could control his set with greater certainty. In course of time, all the operational troubles of the dry-sealed grate were overcome. The sets at Brentford became just as reliable as any water-sealed set in the area; and, above all, there was the pleasant result that the repair and maintenance costs on the dry-sealed grate were lower than on the wet-sealed grate and the reliability was just as high.

It can truly be said that the two carburetted water gas sets at Brentford are the parents of the post-war high capacity carburetted water gas sets in the Board.

Table 1 sets out the results of a test on one set at Brentford carried out in 1943.

Outputs on this plant have now increased from the 3.339 mill. per day noted to 4.25 mill. per day without marked change in efficiency, and steps are now being taken to install a steam accumulator system to improve the steam balance.

Trials on Heavy Oil

In the nineteen-thirties, just as now, there was an urge to increase the range of flexibility of the carburetted water gas process, and there was carried out at Bromley a series of trials on the use of heavy oil as the enriching material. This oil was gasified in the generator, but the price differential between gas oil and heavy oil at that time was such as to make the use of the latter quite unattractive, and the process was discontinued.

Then, in the later 'thirties, attention was directed to the use of low volatile Welsh steam coal to replace coke, and the author supervised very interesting trials on this attempt at complete gasification. No major technical difficulties were encountered; but here again economic considerations were against any great expansion of the use of coal of this type in the London area.

The Gas Light and Coke Company lost a very large proportion of its coal gas production plant during the war owing to enemy action, and carburetted water gas came into even greater prominence. There was no time or occasion for the niceties of plant selection at that time, and carburetted water gas was used for base load, seasonal load, and peak load as they came. Although, in general, carburetted water gas plants escaped destruction, many stations lost their relief holder and there had to be developed quite a new technique in water gas manufacture—the technique of operating on a by-pass valve. The degree of reliability which engineers were able to develop without the relief holder was astonishing. Water gas plants were required to operate for long periods; and that phase, more than any other, taught engineers the value of programmed and pre-determined repairs. The author was fortunate in being associated with one particular plant from which production was required throughout the year, and load factors as high as 96% were attained. The average load availability factor one may expect from a modern, properly cared-for, water gas plant is about 90%.

TABLE 1.

BRENTFORD CARBURETTED WATER GAS PLANT (1943)

Internal Diameter of Generator 8 *ft.* *Blast Pressure at* 31 *in. W.G.*

PRINCIPAL RESULTS OF PERFORMANCE TEST ON ONE SET

Duration of test, hours	168
Inspection of fire and ash removal, total hours	7.1
Cut-outs and maintenance, total hours	0.4
Lost by external causes, total hours	1.5
Gas-making time, hours	159
No. of cycles completed	3,848
Carburetted Water Gas	
Total gas made purified, mill. cu. ft.	23.373
Gas made per day, mill. cu. ft.	3.339
Gas made per hour of gas-making time, cu. ft.	148,000
Gas made per cycle, cu. ft.	6,076
Inerts in gas, %	11.2
Calorific value, B.Th.U. per cu. ft.	494
Daily output, therms	16,500
Blue Water Gas	
B.W.G. per 1,000 cu. ft. C.W.G., cu. ft.	821
B.W.G. made per day, therms	7,900
B.W.G. made per hour of gas-making time, therms	348
B.W.G. per hour per sq. ft. of generator cross-section, therms	6.95
Thermal efficiency of B.W.G. production, %	60
Coke	
Total coke supplied to plant, tons	422
Moisture in coke, %	14.7
Dry weight of coke, tons	360
Breeze removed at inlet generator, tons	41.75
Moisture in breeze, %	14.6
Dry weight of breeze, tons	35.7
Net dry coke into generator, tons	324.3
Net dry coke per 1,000 cu. ft. C.W.G., lb.	31.08
Therms B.W.G. made per 1,000 lb. dry coke	76.2
Therms B.W.G. made per 1,000 tons dry coke	170.7
Therms B.W.G. made per 1,000 tons coke at 4% moisture	163.9
Ash in coke to generators % D.B.	11.6
Gas Oil	
Total oil supplied to carburettor, gal.	46,490
Oil used per 1,000 cu. ft. C.W.G., gal.	2.01
Yield of oil gas per gal of oil, therms	1.25
Analysis of gas oil—paraffin and unsaturated hydrocarbons, % by volume	65.5
Ashes	
Dry weight of material discharged, tons	31.85
Carbon content, %	15.9
Carbon content as % of carbon in coke used	1.8
Fliers Collected in Grit Arrestor	
Average weight per cycle, lb.	2.65
Estimated total weight, tons	4.56
Weight per 1,000 cu. ft. C.W.G., lb.	0.44
Carbon content, %	78.3
Carbon content as % of carbon in coke used	1.3
Annular Boiler	
Boiler pressure, lb. per sq. in.	40
Steam raised (at 40 lb. per sq. in.) per hour, lb.	2,730
Steam raised (at 40 lb. per sq. in.) per 1,000 cu. ft. C.W.G., lb.	19.6
Waste Heat Boiler	
Boiler pressure, lb. per sq. in.	150
Steam raised (at 150 lb. per sq. in.) per hour, lb.	4,850
Steam raised (at 150 lb. per sq. in.) per 1,000 cu. ft. C.W.G., lb.	35
Process Details	
Duration of cycle, min.	2.48
Air—steam ratio cu. ft. per lb.	36
Process steam used, lb. per 1,000 cu. ft. C.W.G.	54.1
Back-run steam as % of steam to fuel bed	38
Steam to set decomposed, %	36.5
Grate speed—revolutions per day	6.5

BALANCE OF STEAM CONSUMPTION AND PRODUCTION TWO SETS OPERATING

	lb. per 1,000 cu. ft. C.W.G.
Process Steam Consumption	
Up-run	31.9
Back-run	22.2
Ancillary Plant Consumption	
Blowers (condensing turbine)	9.0
Exhauster (condensing turbine)	4.0
Boiler feed, hydraulic, oil, and liquor pumps	5.7
Total consumption	72.8
Total production	54.6
Deficiency	18.2 = 25%

Immediate Post-War Years

It was in the years immediately after the war, when the Gas Light and Coke Company had to rebuild a very large proportion of its works, that special attention was directed under the then Chief Engineer and later Deputy Governor, Mr. Birks, and his staff to the best type of plant to install for the loads the Company was likely to experience. Above all, the peak load problem became evident, emphasised particularly by the power cuts imposed by the electricity industry whenever temperatures dropped. Two salient points emerged from this investigation:—

(a) The suitability of a carburetted water gas plant to meet the seasonal load occurring, say, between October and May.

(b) The necessity for some plant with even lower capital costs than the carburetted water gas plant to meet the extreme seasonal or peak load which occurred in the middle of winter.

The latter problem was answered to some extent at least in the Gas Light and Coke Company by the development of its peak load oil gas process.

New Gas-Making Plant

Detailed considerations of the advantages of carburetted water gas and the peak load oil gas plants for seasonal and peak loads are already set out in a publication entitled 'The Characteristics of Gas-making Plant to Meet the Seasonal Heating Load,' presented to the fourth International Gas Conference, 1949, by Mr. F. M. Birks, C.B.E., Deputy Chairman, North Thames Gas Board (I.G.U./12), and there was born of these considerations the plans for a very large increase in the carburetted water gas capacity in the Company.

Beckton was chosen as the site because of its availability of coke and oil, and the success of the dry-sealed generator at Brentford made that type of plant a favourite choice for the new plant at Beckton.

Humphreys and Glasgow, Ltd., were chosen as contractors for this first big plant, and the development of plans became very much a joint effort of that organisation with a team from the Gas Light and Coke Company under Mr. Willsmer as Chief Engineer, with Dr. Pexton, followed by Dr. Spivey as Senior Chemical Engineer, along with the engineering staff at Beckton, where the author at that time was Group Engineer.

Following our experience at Brentford, it was decided that generator diameter of 9 ft. would be suitable, but our ideas on the output which we could expect to get from that generator were somewhat hazy. The big, unknown factor was the use of high blast pressures, and the author was sent to America to include this aspect of carburetted water gas manufacture in his terms of investigation. As designs proceeded, it was thought that an output of 4½ mill. cu.ft. per day from each generator could be safely attained, giving 18 mill. per day for the plant as a whole. With some knowledge of the effect of high blast pressure operation obtained from American practice, it was thought possible to get a higher output than this. Accordingly, the ancillary plant was designed to handle up to 6 mill. cu.ft. per day.

Requirements of New Plant

There were several objectives in the development of this plant at Beckton:—

(a) The plant should operate at the highest possible efficiency of coke conversion and of oil conversion using any grade of coke down to boiler nuts size.

(b) The plant should operate at the highest possible efficiency of coke conversion when making blue water gas only, for part of the plant was required to work throughout the year on base load to provide blue water gas for dilution purposes.

(c) The overall efficiency of the plant should be as high as possible; and this implied an efficient usage of waste heat. Design in this direction pointed to the conversion of waste heat to electricity through the medium of high pressure steam with the possibility of two-way traffic between the plant and the works grid. A turbo-generator with specially designed controls was used for this purpose.

(d) Special attention was directed to the dust problem. Although this plant was to be built in the heart of Beckton, and not immediately adjacent to residential property, every effort was made to cut down to a minimum any nuisance from dust. There were incorporated the first waste gas cyclone dust arrestors used in the Gas Light and Coke Company, and, coupled with these cyclones, a method was designed for handling the dust in a wet state and removing it continuously from the system. Special connections were designed to remove any dust in the gases between the generator and the carburetter to obviate the risk of dust carry-over at high blast pressure.

(e) The plant should have flexibility of output with especial emphasis on a very high maximum. Associated with this the air blowers were chosen to operate over a wide range of pressure if required, rising to a maximum of 60 in. water pressure under the grate.

After many delays and some changes of design which Humphreys and Glasgow bore with great fortitude, construction of the plant started on site in November, 1948, and gas was made for the first time on November 1, 1951. The plant came into full operation in 1952.

Description of Plant

The plant consists of four dry-sealed generators, each 9 ft. in diameter and fitted with grates of the Haug type which discharge ash into twin pockets capable of holding the make of ash from an eight-hour run. Coke to the plant is supplied by road with the lorry tipping into two underground pits, whence the coke is elevated by two skip hoists into overhead hoppers carrying a 24-hour supply. From these hoppers the coke is thoroughly de-breezed by vibratory screens prior to entry into the generator charger. The plant is fitted with two air blowers, each blower supplying two sets.

The gas from the generator passes to a normal downward flow chequered carburettor, passing up through the superheater to an elevated wash-box. This is fitted with a conical base and sludge pocket so that deposits can be removed while the sets are in action. Heat is extracted from the waste gases by passage through a horizontal tube waste heat boiler operating at 300 lb. per sq. in. The high pressure steam is supplied to a pass-out turbine driven alternator of 1,400 kW capacity which can exhaust at 15 lb. pressure to an accumulator, whence it is drawn for use in the process. The surplus steam flows through the vacuum stages of the turbine to a condenser. To the steam from the accumulator is added that from the generator jacket boiler and surplus low pressure steam from an adjacent producer gas plant. This low pressure steam is used in the generator for the production of water gas. The turbine driving the alternator is arranged to take the whole of the high pressure steam made, but the amount of current generated depends on the balance of steam passed out at 15 lb. pressure for process work and the flow to the condenser. The works main supply acts as an accumulator for the receipt of surplus electricity from the plant or for the supply of electricity when insufficient is generated. The exhausters, the blowers, and practically all the ancillary equipment, including pumps, are electrically driven.

The ancillary plant consists of primary and secondary condensers with detarrers, naphthalene washers, to the purifiers and meters. A small relief holder of 150,000 cu.ft. capacity rides on the gas main at the inlet of primary condensers. Automatic control of the exhausters is provided by a butterfly valve on the inlet of the exhauster main which is controlled by the height of the holder bell. Duplicate settling tanks and filters for the oil gas tar are arranged in parallel and the aqueous effluent passes through a coke filter to act as the liquid medium in the dust extraction flumes.

Starting-up the New Plant

The first days operation of this plant were watched with much trepidation, for there was much at stake. A large sum of money had been expended, and the plant incorporated many completely new and quite unknown features. Teething troubles were expected; and we were not disappointed in that expectation. There were difficulties in controlling heats; bottom temperatures seemed to be much too low. However, after a period of three to four months initiation the plant began to assume that degree of reliability which was apparent in its parent at Brentford, and soon the operating staff took over complete control and the plant worked according to a strict schedule and pre-determined plan. Steadily the outputs and efficiencies rose, and soon the time came to put the plant under test, fully to determine the operating results.

(To be continued)

RECONSTRUCTION IN THE EXTREME SOUTH WEST

FROM A PAPER TO THE SOUTH WESTERN SECTION OF THE INSTITUTION OF GAS ENGINEERS ON MAY 19, 1954, BY

T. L. TALLENTIRE,
South Western Gas Board.

The extreme South West refers to that portion of the area of the South Western Gas Board area formerly known as the South Cornwall Sub-Division—a territory which embraced the greater part of the County of Cornwall. Cornwall is a unique county in several respects. It is in contact with only one other county. On all other sides it is washed along its 320-mile stern coastline by the English Channel or the Atlantic Ocean. The county also has the distinction of being the birthplace of coal gas. At Redruth, in 1792, William Murdoch—one of the most remarkable men that Scotland has produced—discovered gas and used it in his home and office. Cornwall covers an area of 1,360 sq. miles, representing 17% of the South-Western Board's total area. The population, however, is only about 330,000, of which approximately 260,000 reside within the boundaries of the former Sub-Division, the number of consumers being 30,000, representing only 4.8% of the Board's total consumers.

Moreover, this relatively small number of consumers is scattered over a wide area. Hence the problem confronting the Board at vesting day was not an enviable one from either a technical or an economic point of view.

A total production of only 4,250,000 therms, or 3.7% of the Board's total, was being made in 19 separate works varying in size from one of the smallest in the country—at St. Just, in Penwith—where the entire motive power was provided by a water-wheel yielding ¾ H.P. and producing annually about 2 mill. cu.ft. Most of these works had no mechanical handling equipment, and only three had modern carbonising plant—and these three were working to capacity.

The Picture at Vesting Date

On the basis of 3.5 persons per consumer, 105,000, or 40% of the people residing in the extreme South West 'enjoyed' the benefits of a gas service. To say that the benefits of gas were being enjoyed by all consumers would be an over-statement. Apart from any consideration of quality and pressure at the works outlet, the distribution systems were, for the most part, incapable of conveying an adequate supply to the premises of many of the consumers. In addition to the inadequacy of the distribution systems the economic aspect by reason of 'unaccounted-for' alone presented a formidable problem, reaching alarmingly high figures at many undertakings, and in one instance being as much as 40%. With a few notable exceptions, gas fitting, appliance maintenance, and general consumer service had failed to move with the times.

The picture truly reflects the position as it obtained at vesting date, but it should not be construed as an indictment of our predecessors. They were men of sterling qualities and performed wonders of ingenuity and endurance in facing and overcoming difficulties which were largely due to factors beyond their control. Only those engineers who have experienced the difficulty of maintaining supplies on a small gas undertaking can appreciate the steadfastness of those in the far South West who kept the gas industry going against odds that time after time might well have defeated the specialist in the larger undertakings.

This, then, was our inheritance. Its failure to comply with the terms of the Gas Act was a matter of grave concern demanding immediate action. It was a financial liability of considerable magnitude.

The futility of large-scale expenditure on works of obsolete design, which in any case could never again produce gas at an economical selling price, was quickly recognised. Integration was the logical solution. The scheme now being developed provides for the demands of the whole of the former Sub-Division to be satisfied ultimately by one works to be erected at Newham (Truro), a development which, in due course, will form part of the integration pattern designed for the whole of the Board's area. Preliminary work on site for this new works is now in progress, and by 1957 the first section of the plant capable of producing 2¼ mill. cu.ft. per day is scheduled to be in commission. Further extensions will be added as may be necessary up to a maximum of 6 mill. cu.ft. per day as and when the useful life of the comparatively modern plants at Penzance and Newquay has been exhausted.

Pending completion of the Newham Works, an intermediate stage will be reached when the majority of the small and inefficient works will have ceased production and become holder stations, the additional load thereby thrown on the remaining stations being taken up by extensions, commenced at vesting day, on two stations.

In the days of plenty, full speed ahead with the integration mains would have been the signal; but the rate at which mains could be laid was determined by the availability of pipes. In the meantime production at all works had to be maintained. But in view of their general precarious conditon, and having regard to their short expectation of life, it became a matter of 'make do and mend.'

At St. Just, a village where we had 78 consumers, lying seven miles to the West of Penzance, the cost of gas into holder was in the region of 5s. per therm—and this for gas of unknown, but most certainly low, calorific value. The problem here was resolved late in 1953 when a liquid petroleum plant of the Draketown gas-air type was installed. Although precise costs are not yet known, results so far have been most satisfactory. The calorific value of the gas supplied to the district is 720 B.Th.U. per cu.ft.

Little difficulty was experienced at St. Just in converting existing appliances, but where these were of obsolete type replacements were provided. Due to the higher specific gravity of the gas a new holder under construction at the time the liquid petroleum plant was being installed was weighted to throw a pressure of 60/10ths W.G.—*i.e.*, an increase of 15/10ths W.G. on the former pressure applied to the district. By this means, completely satisfactory pressures were ensured throughout the existing distribution system.

Distribution

Having recognised that only by centralisation and/or co-ordination of gas production would it be possible to achieve a sound economy, attention was directed to the design of bulk supply mains. Estimates of gas demand for several decades ahead can, at best, be no more than intelligent assumptions. But a reasonably accurate estimate must be reached to serve as a basis for estimating main sizes, pumping pressures, and compressor capacities. After study of the anticipated future increases in population and dwellings (up to 1970) based on information provided by the County Planning Department, and having determined the potential increase in consumers therefrom, a figure representing the quantity of gas to be transmitted during the useful life of the mains and plant was reached.

The first section of integration main to be laid in South Cornwall was that between Hayle and St. Ives, the summer demand at the latter town already being in excess of the plant capacity at vesting day, whereas the former works

Production of town gas by complete gasification of coal

(GAS INTEGRALE SYSTEM)

	Naples	2 units
	Rome	4 units
	Trieste	2 units
	Milan	2 units
★	La Spezia	1 unit
	Como	1 unit
	Vierzon	2 units
★	Dijon	2 units
	Ulm	1 unit
★	LONDON	1 UNIT

★ under construction

Sole licensees for sale of plants in Great Britain and Australasia :—

Woodall-Duckham Construction Company Ltd.

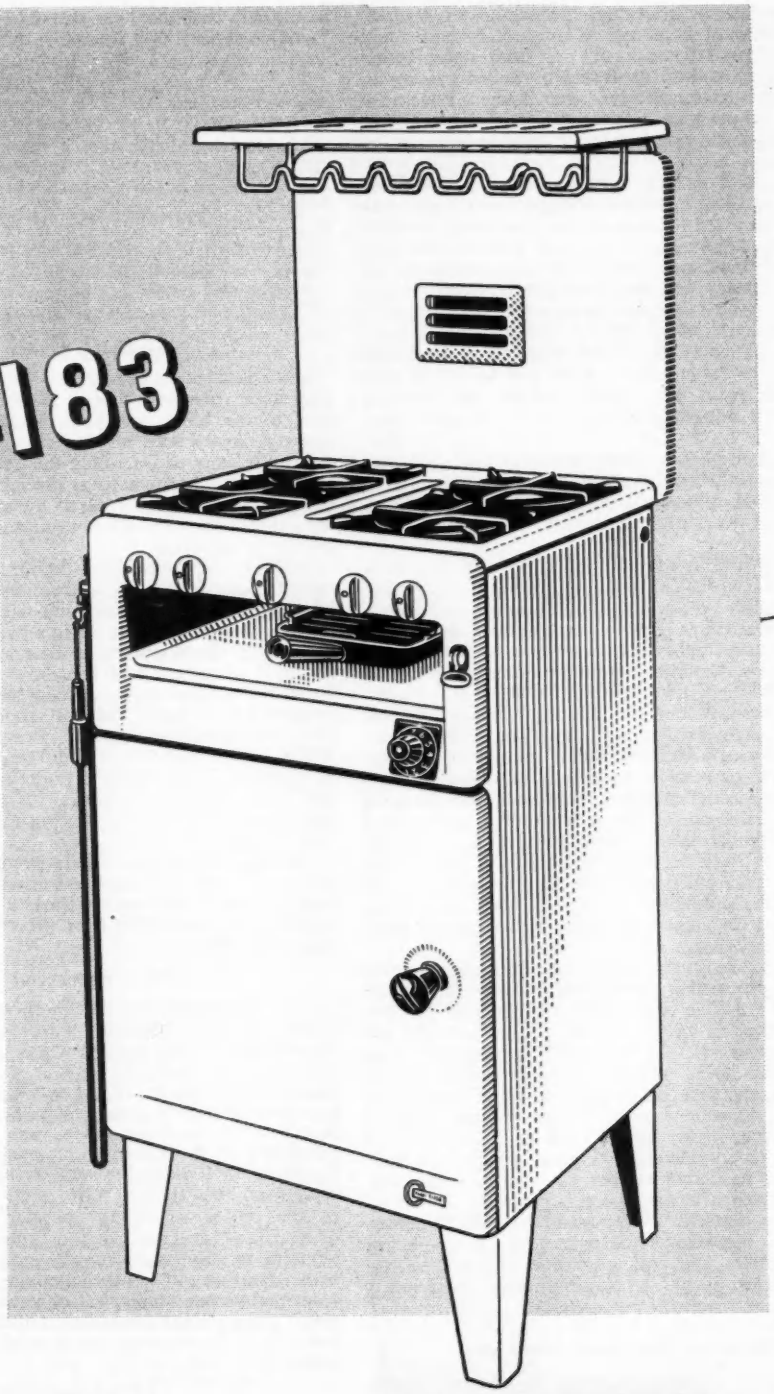
Woodall-Duckham House,
63-77, Brompton Road, London, S.W.3

Telephone: KENsington 6355 (10 lines)
Telegrams: Retortical (Southkens) London

ANOTHER STEP FORWARD

A worthy successor to the S.4180, of which over three quarters of a million have been sold in 5 years, the S.4183 has a much improved appearance and many desirable refinements. The more notable of them are full width oven door, forward venting oven flue, attractive hotplate and platerack design, and an entirely new external finish of textured vitreous enamel.

S.4183



The **NEW WORLD S.4183,** *like its predecessor, offers the keenest value for money in the low-priced cooker market.*

NEW WORLD

PRODUCT OF Radiation Ltd

RADIATION GROUP SALES LTD., 7 STRATFORD PLACE, LONDON, W.1 TELEPHONE: MAYFAIR 6462

operated well within its limitation. A section of pipeline comprising 1¼ miles of 8-in., and 2¼ miles of 6-in. was laid in 1950-51, and two 10,000 cu.ft. per hour compressors were temporarily installed at Hayle to pump gas to St. Ives, either through the St. Ives distribution system to holders during off-peak periods, or direct into an existing high pressure system supplying an outlying district of St. Ives.

Development had, so far, been confined to the West. Though work could well have continued in that area—as indeed it could almost anywhere within the Sub-Division—the conditions at St. Blazey in the East had by this time become critical, and the section of main between St. Austell and St. Blazey was therefore given priority. The laying of 3½-miles of 8-in. pipe enabled St. Blazey works to cease production in July, 1952. To St. Blazey, then, went the distinction of being the first works in Cornwall to close down after vesting day. After that its supply was received in bulk from St. Austell, where the existing compressors were adequate to deal with the additional load.

With the near completion of the section of main between Hayle and Redruth, a distance of 10 miles, comprising 10-in., 8-in. and 6-in. diameter pipes, two more small works at Camborne and Redruth respectively will shortly cease production.

Coincident with the increased production resulting from completion of the works extension at Penzance, the laying of five miles of 8-in. main between Penzance and Hayle was completed in 1953. The two compressors (ex Hayle) were transferred and employed to pump gas from Penzance to St. Ives and Hayle, thus permitting the closing of the Hayle works. St. Ives, with its more modern plant, continued to produce; now, however, having its supply, during peak periods, augmented from Penzance. The compressors at Penzance are a temporary expedient pending installation of the permanent machines for this station.

Although in the initial stages gas will flow from West to East—*i.e.*, from Penzance to Newham (Truro), the reverse will ultimately obtain. Hence, excluding the 6-in. branch lines to St. Ives and Redruth respectively, pipe sizes increase as the main pipeline approaches Newham, which is scheduled to be reached by December of this year, when a continuous line 25 miles in length will exist between Penzance and Newham.

Running concurrently with the Hayle-Redruth projects, mainlaying was proceeding in the East between St. Blazey and Fowey, and this line is now virtually finished. Work is also proceeding on the five-mile section between St. Blazey and Lostwithiel. The length of integration main laid, or in progress, is 34 miles at an approximate cost of £225,000. Since the rate of development has been, and continues to be, dependent on availability of pipe, it is a matter of conjecture how long it will be before the 97 miles remaining to complete the original scheme are laid. Nevertheless, an equitable system of allocation ensures that priority is given where the need is greatest.

Some of the volumetric governors and ancillary equipment required for the various holder stations are now being installed, and others will follow in due course. In the meantime, the flow of gas to those stations receiving a bulk supply will be manually controlled.

Low-Pressure Distribution System

To prosecute with vigour the policy of integration was of importance. To do this without at the same time improving the deplorable conditions of pressure and supply, savoured of sacrificing the substance for the shadow. Furthermore, the demands of new housing schemes and extensions of supply for other purposes also had to be satisfied—all this at a time of shortage and restrictions. Nevertheless, progress has been made, and the figures given in Table 1 indicate the extent of the district distribution work it has been possible to carry out since vesting day.

While the totals shown in Table 1 may not be impressive when related to a large undertaking, they represent a considerable achievement in the scattered area which forms the subject of this paper, particularly when it is remembered that there was virtually no organisation for planning or executing this work at vesting day, and also having regard to the fact that the total distance of mains existing in the Sub-Division in 1949 was only 162 miles.

Description	1949-50	1950-51	1951-52	1952-53	1953-54	Totals
Main laid (miles) excluding bulk supply mains) ..	4	9	7	13¼	9½	42¼
Main cleared (miles) ..	—	½	¾	¼	½	2¼
Services laid (new) ..	653	645	648	787	833	3,566
Services relaid	424	357	588	816	1,221	3,406
Projects completed ..	15	21	40	35	51	162
Consumers benefiting, directly or indirectly, from improved supply (estimated)	1,729	1,375	3,000	968	2,187	9,259

Mainlaying Under Contract

Since neither the labour nor the equipment necessary to undertake mainlaying on a large scale was available, the bulk of the work was done by contractors. The results achieved more than justified this policy, for not only was the capital cost of obtaining the necessary plant and equipment avoided, but, what was probably even a greater advantage, the method had none of the industrial relations problems that invariably arise when considerable movement of labour is involved.

Mobility of labour and equipment naturally became a major factor in the reconstruction of this sparsely populated territory. Reference has already been made to the necessity of maintaining a high degree of flexibility in our integration development in order that the work could be executed piecemeal and related to priority of need. This flexibility is even more essential when related to improvement of supply and consumer service. To this end, special plans were made to establish mobile reconstruction teams. These teams move into any given district and are so equipped to enable them to undertake complete reconstruction from main to appliance. No charge (excluding new appliances) is made to the consumer, the total cost being borne by the Board.

The success of the mobile reconstruction team experiment at Hayle and elsewhere cannot be measured by the tangible results achieved. Such a basis would ignore the tremendous goodwill that the effort produces. Of this, there is ample evidence.

The Commercial Aspect

With few exceptions the 18 showrooms within the Sub-Division were in sympathy with the works and distribution departments. Their condition was such that during the first year or so of nationalisation it was necessary to spend a considerable sum on alterations—lighting and decorating—to render them even reasonably efficient and attractive. The standard of consumer service was much lower than that demanded by a modern community. This was reflected in the sales of appliance figures and consumption per consumer, the latter, for domestic consumers, being in the region of 99 therms per annum. Recruitment of keen and energetic district salesmen and home service advisers to implement the Board's sales policy, together with advertising of goods which are now displayed in more congenial surroundings, has done much to rectify the position. Phenomenal increases cannot be expected. The gas industry in the extreme South West has a lot of leeway to make up.

Accountancy

At the outset of nationalisation there was in the Duchy of Cornwall an incredible variety of accounting systems in vogue, ranging from the methodical to the virtually non-existent systems of the very small works operating independently. A versatile manager of one of the midget works once had to have direct recourse to the prepayment meters in order to provide the week's wages. This was symptomatic of the then prevailing conditions.

The essence of the problem was to build out of these diverse elements a central organisation—conforming, of course, with Board policy—capable of achieving a large measure of uniformity and security, and, later, establishing the effective centralisation of accounting and billing procedures. Added to this diversity of practice, the vicissitudes

of the years had woven the character of the local personnel into widely different patterns. Some were extremely colourful. All had to fit harmoniously into the design of the new large-scale organisation.

Parallel with the progressive integration of accounting functions and records was the necessity of moving certain personnel from their outposts in the Duchy to a central office. Broadly, the deployment of long-service employees to a centre remote from their native town detracts from efficiency and is psychologically wrong. Such transfers were, whenever possible, avoided.

Some degree of control and security at Sub-Divisional level has been achieved within the last five years. What of the future? Long-term planning envisages the effective mechanisation centrally of all accountancy functions, at the same time maintaining consumer records locally, thus providing speed with accuracy in the preparation of accounts and returns without sacrificing any essentials of good management in the field.

Looking back over the past five years, what have we achieved in this outpost of the South Western area, where, ironically, gas first made its bow? From an administration point of view, the outlook at vesting day was bleak. Owing to its remoteness from the larger communities, it was not possible to base any programme of reconstruction on an existing large well-equipped and organised undertaking. Improvements had to start from scratch. Though it would have been impossible to have made such progress as has been made without the aid of the Board's centralised scientific, engineering, commercial, and accountancy services, nevertheless the major credit must go to all in the team in the extreme South West who shouldered the burden. And it was a burden! None has any reason to feel ashamed of the progress made thus far. The worst is past. The gas industry in Cornwall is now ready to advance in every sphere and thus provide the Cornishman with all the advantages of a modern fuel service enjoyed by his English brother across the Tamar.

MAINS AND SERVICES

Following is our report of the discussion on the paper on 'Mains and Service Practice,' which Mr. G. Fitton, Engineer and Manager of the Neath undertaking of the Wales Gas Board, presented at the meeting of the Wales and Monmouthshire Section of the Institution of Gas Engineers at Porthcawl on May 13 (a summary of which appeared in the 'JOURNAL' on May 19).

Mr. J. H. Chapman (Swansea) complimented the author on the considerable trouble he had taken in logging the results of his work on mains and services. Whether they agreed with all that he had said or not they must agree that he had approached his problems with a view to obtaining accurate information while the work was in progress in order to analyse the results on its completion. The cost of main and service laying was so high that the Board had impressed on all undertakings the necessity for making the best use of existing mains and services. Mr. Fitton's paper revealed a very genuine attempt to make the most use of existing plant, rather than go to the expense of relaying. He observed that Mr. Fitton favoured dual mains; was he not by so doing doubling the potentiality of unaccounted-for gas? His work on jet boosting was very interesting, and he congratulated him on his initiative in taking up that work.

Mr. W. Clark Jackson (Coal Officer, Wales Gas Board) said the growth in consumption at Neath over the last 15 years had been remarkable and the distribution plans which had been put into operation in earlier periods had been swamped by the extraordinary increase in gas consumption. In the war period difficulties were experienced in carrying out anything new, other than what was involved in meeting the gas demands of industries of wartime importance that were developing in some parts of the town. At one time three individual 10-in. mains from the works were sufficient to afford an adequate supply of gas to all parts of the town. New demands had developed, and as in other towns all over the country housing developments were taking place on the outskirts. Original 4 in. mains had been replaced by 8 in. mains to meet the needs of housing developments, first by private enterprise and later by the local authority. He had long realised that with the substantial increase in output somebody was going to run up against a packet of trouble at some time, and he congratulated Mr. Fitton on the way he had tackled it.

Mr. J. Wood (Bangor) said the paper was going to be useful to him in more ways than one. It would be interesting to make some comparisons between Mr. Fitton's figures for cleaning mains and those which he had to face at Bangor. Like Mr. Fitton he was using Johnson couplings and was taking care to coat them well with Denso to protect them. He had also employed the same system of cleaning by suction as that at Neath, and as Mr. Fitton had rightly remarked it could only be used in certain circumstances. In hilly districts they could not get the machine near enough to the property they wanted to attend to.

Mr. S. L. Wright (Wales Gas Board headquarters) observed that among the advantages to be expected from bulk supplies Mr. Fitton had mentioned gas of more consistent composition and therefore of more consistent combustion characteristics; closer calorific value control; lower and more consistent specific gravity; lower oxygen content; and lower dewpoint. Managers need not wait for bulk supplies before nailing those colours to their masts. He was interested in Mr. Fitton's figures for the amount of rust collected from mains laid 25 years ago. The majority of them were in steel, with some sections in cast iron; the figures for rust from the cast iron mains were very much lower than in the case of steel. He noticed that the new 3 in. mains were being laid in cast iron, which appeared to indicate that in spite of all the care they took to produce gas of good quality he still felt he could not recommend steel for these small mains.

The Author's Reply

Mr. Fitton, in a brief reply to the discussion, reminded Mr. Chapman that proposals for dual mains were confined to long mains under footways, planned with the idea of keeping them out of the way of the heavy traffic using the carriageways. With regard to Mr. Clark Jackson's remarks, he had tried to show in the paper how they had endeavoured to keep capital expenditure in some sort of step with load development. They could go on adding services for a time, but there came a time when they could not add any more, and it might be that they had taken that easy way out of their problems longer than they should have done. He was interested to hear that Mr. Wood had employed the vacuum suction machine for cleaning services at Bangor; he reminded him that such machines could not be fully effective unless they were used in conjunction with a flexible steel 'snake.' In answer to Mr. Wright, he was altogether in favour of cast iron mains as against steel.

A vote of thanks was accorded to Mr. Fitton on the proposition of **Mr. J. F. Rust** (Newport), seconded by **Mr. S. D. Coole** (Barry).

HULL UNIVERSITY

The University College of Hull, founded in 1928 and endowed by a gift of £250,000 from the late Mr. T. R. Ferens, has been granted full university status. The Principal, Mr. J. H. Nicholson, becomes the first Vice-Chancellor.

It was in August, 1953, that a general meeting of the Court of Governors of the College decided to submit a petition to the Queen to grant a full charter in conformity with the terms of the draft which had been prepared, or with such changes as Her Majesty might think fit. It was a happy coincidence that the announcement of the granting of the charter should be made on the day of the Queen's return from her Commonwealth tour.

The official notification stated that at a meeting of the Privy Council on May 13 approval was given on behalf of the Queen to the granting of a charter constituting and founding a university within the City and County of Kingston-upon-Hull.

Lord Middleton, Lord Lieutenant of the East Riding, will be the first Chancellor of the new University.

There are 700 students in attendance. Those taking their final examinations this year will take the examination of the London University, and those in their first and second years will be given the option of taking either the London or the Hull degree. New entrants from October will be required to take the Hull examination.

DEVELOPMENT SINCE NATIONALISATION

FROM AN ADDRESS AS CHAIRMAN TO THE MIDLAND SECTION OF THE INSTITUTION OF GAS ENGINEERS ON MAY 14, 1954, BY

CHARLES C. WOOD,

M.Inst.Gas E., General Manager, Sheffield and Rotherham Division, East Midlands Gas Board.

During the past few years active development has taken place in the gas industry. Fifty years normal history is being compressed into a few years.

Coal is the fundamental approach to our problem. It is our duty to see that coal is used efficiently. We must ensure that the losses inseparable from its treatment by carbonisation or gasification are kept at a minimum, as are also the losses inseparable from the use and application of the refined fuels gas and coke. Recent developments in the production of atomic energy indicate that an answer to the coal problem may be found before we run into serious difficulties. However, for some time ahead our economy must be based on coal. Here the gas industry has a most important part to play; and if we are to make our maximum contribution to the national economy, we must remain in a competitive position. In this respect the immediate outlook is not entirely satisfactory.

There are three incentives which, in decreasing order of effect, will induce consumers to save fuel. They are pounds, shillings, and pence. If ultimate fuel economy was reflected in the prices charged for coal to different classes of users, we should be much busier than we are today. There have been indications that continued rise in average coal prices can be anticipated. On the other hand, there is not evidence of a desire to use the price weapon to discourage inefficient consumption. We shall be faced with increasing competition from electricity. There are certain specialised applications, mainly industrial, where the use of electricity is desirable. In the domestic cooking, water heating, and space heating fields competition is bound to become severe.

Gas Industry Research

There are now two Gas Research Centres. One is at Fulham, the other at Birmingham. They are controlled by the Research Advisory Committee of the Gas Council.

Coal availability will obviously exercise considerable influence on future gas production in this country. Present developments in coal production by the National Coal Board are generally in the direction of the weakly swelling coals. This situation has stimulated investigation into new methods of coal carbonisation and gas production. The blending of strongly coking coals with coals of lower rank supplies a partial solution of the problem; but, as blending involves crushing, it is more applicable to the coke oven industry than to the gas industry. With coke ovens, judicious blending may give uniformity to the coke which will more than offset slight deterioration in quality. With gasworks, as the customary gas-making coals become scarcer, the path may be to use what gas-making coal is available in conventional plant and to install supplementary units for the manufacture of gas from heavy oil or from such low-grade, weakly-coking coals as may be obtainable.

The Lurgi process for the treating of coal in a static bed in the presence of steam and oxygen under pressure has been fully investigated by the Birmingham Research Station of the Gas Council, and tests of a number of coals have been made by the personnel of that station on the Lurgi gasifier at Houlton (Ruhrgas A.G.). It is established that the Lurgi process extends greatly the range of materials of gas manufacture and that it can deal with coal of very high ash content. It is not suitable, however, for coals containing a large proportion of fines. After removal of about 30% of the carbon dioxide which the gas originally contains, the calorific value of the available gas is 415 B.Th.U. per cu. ft. The question of enrichment by methane synthesis or otherwise is being studied and efforts are being made to increase the methane content. On the results of the Houlton experiments, the West Midlands Gas Board has proposed to put down a plant which will serve as a large-scale research unit.

Another method, known as the Lurgi L.R. system, is being developed to produce gas by the heating of a stream of fine coal with solid heat carriers in the form of pebbles heated in a gas flame. The system is suitable for gas coal, brown coal, or peat. With gas coal the gas calorific value of the gas made is about 420 B.Th.U. Experiments have been carried out at Essen on the gasification of fine coal in a cyclone chamber to give gas of 100 B.Th.U. suitable for coke oven underfiring at low capital cost.

Problems in the Sheffield Area

At present I am associated with the Sheffield and Rotherham Division of the East Midlands Gas Board. Gas supply conditions in this area are unusual for three reasons:—

(i) The high proportion of coke oven gas taken from the National Coal Board and privately-owned coke ovens.

(ii) The high proportion of the industrial gas load, amounting to about 75% of the total output.

(iii) The abnormal weekday/week-end load factor due to the five-day week in industry.

Generally speaking, about as much gas is sent out on Saturday and Sunday combined as on the average weekday.

The high industrial load is desirable from the point of view of annual load factor, but the five-day week gives rise to a number of problems connected with plant flexibility, gasholder storage, and the acceptance of base-load coke oven gas with the moral obligation not to waste it by 'bleeding' at the ovens.

The position in Sheffield itself at vesting date was difficult. There had been rationing of gas supplies to industry for several years, and it had proved impossible to accept large additional industrial loads which were known to be in demand. A substantial amount of of new gas-making and storage plant had been placed on order between 1945 and 1949. Delays inevitably occurred before benefit could accrue.

Every effort was made to meet the load without rationing. At the time the steps taken fell into two classes:—

(i) To get all available plant at work, including some almost derelict carbonising plant.

(ii) Quick interlink between Rotherham and Sheffield to bring surplus carburetted water gas capacity from Rotherham. This was accompanied by strict control of the undertakings taking gas from the coke oven gas system which also supplied Sheffield. Standby plant at all the interlinked small works was brought into operation, and a limited amount of additional coke oven gas was negotiated on a short-term basis by replacing with pitch creosote mixture, the coke oven gas used at the ovens for boiler firing.

These measures were put into effect quickly. Rationing was abandoned, and a full supply has since been given except on one or two isolated occasions.

The maximum day's output on the Sheffield system has risen from 54.8 to 75.1 mill. cu. ft. between 1948-1949 and 1953-1954. It appears that this rate of increase is likely to be maintained for some time.

A large unsatisfied demand existed. Thus consideration had to be paid to long-term planning. The problem was approached on the following lines:—

(i) Most of the small works in the Division were uneconomic and arrangements were made to link them up to suitable supplies as quickly as possible. [The small manu-

facturing works at Tideswell, Hathersage, Whitwell, Clowne, and Cudworth have already been linked-up.] Plans are in hand to deal with the remaining small works in the Division. Before long all uneconomic units will have ceased to manufacture gas.

(ii) It was decided that, apart from gas supplied from the coke ovens, gas would be made only at Sheffield, Rotherham, and Doncaster. An appropriate interlink is therefore being provided between Rotherham and Doncaster.

(iii) The existing Sheffield works at Grimesthorpe and Neepsend are being completely reconstructed. Horizontal retorts are being installed at Grimesthorpe, and a horizontal chamber-oven plant will be installed at Neepsend. To provide additional flexiblity, this plant will be arranged for alternative firing by coal gas.

(iv) Construction is proceeding of a new works at Car House, Rotherham, where intermittent vertical chambers are being installed to produce an ultimate maximum of about 12 mill. cu. ft. per day. Again this plant will be arranged for alternative rich-gas firing.

Hammer mills and blending equipment for coal are being provided at Car House, and some similar arrangement may be introduced at Neepsend. Particular attention is being paid to the question of coke quality and handling, both at the new Car House works and at the Sheffield works. New coke handling plants will be installed at all these points, and adequate provision is being made for stock reclamation and re-screening at high rates, so as to meet peak requirements under the worst conditions.

Some of the older coking plants in the Division are planned to cease operation shortly. However, there will be an overall increase in the intake of coke oven gas due to modernisation and extension. When these increases in gas-making capacity become available, the large water gas plants installed at Sheffield and Rotherham will take their proper place as peak load units.

The main problem is to develop to deal adequately and economically with the annual and weekly load factor variations. At the moment, base-load coke oven gas is taken by the grid-connected undertakings at a rate of about 50 mill. cu. ft. per day. The average weekday output of the same undertakings is about 85 mill. cu. ft. The week-end output amounts to about the same. The available storage capacity on the system is only 30 mill. cu. ft. The problem is not one easily to be solved.

If base-load coke oven gas is not to be wasted at week-ends, gasholder stocks must be allowed to fall to about 5 mill. cu. ft.—*i.e.*, 1 to 1½ hours supply—at 6 p.m. on Friday evenings. This has been effected in Sheffield for years by a strict stock control scheme. However, an additional 20 mill. cu. ft. of gasholder capacity which will become available in the near future will be extremely welcome. To store gas during the two week-end days and distribute it over the five weekdays is expensive. In fact, the cost amounts to about 1s. 9d. per 1,000 cu. ft. stored under these conditions. Thus a balance has to be struck between taking reasonable risks and incurring excessive expenditure on storage. The lesson to be learned from Sheffield experience is that greater risks can be run with gas stocks than might at first sight be thought tolerable.

Gasholders are expensive. There may still be many instances throughout the industry where the inner lifts cannot be used because insufficient pressures are available from them; and there may often be justification to install boosting equipment and thereby make more effective use of existing gasholder capacity.

Organisation

Nationalisation has enabled a large measure of integration of manufacturing resources of all kinds to be achieved quickly. It has enabled long-term planning to be undertaken on an overall basis for the whole of a division. There can be no doubt that most of this geographical integration was not only desirable but was long overdue. Nationalisation has, of course, created its own problems. One of the problems is the type of management to be developed to suit the larger units around which the industry now tends to operate. The management functions of a gas undertaking must be provided for today as in the past. As the physical size of the job develops, delegation of responsibility becomes necessary and must be associated with specialisation. This has been the approach in developing the management organisation of the Sheffield and Rotherham Division.

At vesting date, Sheffield was a large undertaking far outweighing in size and resources all other undertakings in the Division. It had been organised on functional lines; and, as geographical circumstances permitted, the Sheffield organisation was expanded to cover the whole of the Division. Those matters which were better centralised were in fact centralised. The while de-centralising of the sales and service function was carried out so that the consumer had contact with personnel who could deal with day-to-day requests and needs. No revolutionary changes were made in the districts of the Division outside Sheffield. A master plan was prepared, and every opportunity was taken to work towards the fulfilment of this plan.

The principle adopted is to have, at Division Headquarters, senior executive officers responsible for the functions of accountancy, engineering and production, distribution, and sales and service. The industrial load in the Division is so large and important that industrial gas sales and service is the responsibility of a separate officer. Another officer is responsible for the co-ordination of domestic and industrial coke sales. These officers have available to them the services of a group of specialists who handle personnel and education; safety and welfare; transport; central purchasing; coke oven gas; and administration. The Division has been divided into eight districts, in each of which will be found a district officer responsible to his chief at Headquarters.

The service of the specialists which is available to the divisional officers is, of course, available at any time to district officers. The district manager (who is the counterpart in the district of the divisional sales and service manager), is responsible for all sales and service matters in his district.

Since nationalisation the gas industry has made striking progress. Availability of capital is enabling us to catch up with arrears in manufacturing capacity. New powers have enabled local prejudices to be surmounted and geographical integration to be accomplished. Progress has been made in rationalising gas tariffs, and service to the consumer is constantly being improved. On the other hand, due to the growing size of the organisation, we may be tending to lose some of the traditional relationships which existed between management and employees in the smaller undertakings of the past. In mentioning this I have in mind the fostering of the spirit of pride in the job and in the service gas can give.

IRON AND STEEL RESEARCH

Total expenditure by the British Iron and Steel Research Association for the year 1953, excluding the cost of the new Sheffield laboratories opened by the Duke of Edinburgh last November, was £467,000. The 10th annual report states that apart from the 200 or so projects in the current research programme, there are many others that could be started if sufficient funds were available. In particular, there is a need to intensify research on design of steelworks plant as it is felt that industry has, for too long, been dependent upon American design. The Association has benefited from the sterling counterpart of funds allotted under the provisions of the Mutual Security Act and grants totalling £25,700 spread over three years have been approved for investigations on productivity in the steel industry, improvement of control design, organisation of the flow of technical information into and within the industry, and advisory services.

One of the most notable developments in 1953 was the formation of a group of member firms to build and operate a small-scale commercial plant for the continuous casting of steel. A special arrangement has been made with an American company to operate the Association's patents in that country and further negotiations are in progress with plant manufacturers for the development of continuous casting methods in Sweden and elsewhere.

NORTHERN AREA RECONSTRUCTION

FROM AN ADDRESS AS CHAIRMAN TO THE NORTH OF ENGLAND SECTION OF THE INSTITUTION OF GAS ENGINEERS ON MAY 7, 1954, BY

G. W. PERKS,

M.Inst.Gas E., Stockton Division, Northern Gas Board.

On the advent of nationalisation five years ago, area boards were faced with a heavy burden of responsibility to meet rapidly expanding demand with inadequate plant which, in many cases, had been woefully neglected. This was due partly to conditions prevailing during and immediately after the war, and also to the reluctance of the previous owners to sink further capital in something they were so shortly to relinquish. In many instances, however, particularly in the smaller undertakings, such circumstances had existed for decades, long before nationalisation was contemplated. This state of affairs applied not only to manufacturing stations but to distributing systems also, where housing development, frequently on the fringe of existing networks, involved extremely heavy expenditure for the provision of the necessary mains and equipment. The protracted delivery and shortage of materials, coupled with their constantly rising cost, further complicated a situation where a sense of frustration could well have resulted in stagnation.

In my opinion the area boards tackled their problems under difficult conditions with commendable foresight and vigour, and have now reached the stage when the results of their efforts are bearing fruit. In many instances schemes of integration, entailing the physical linking-up of undertakings, the reconstruction and expansion of manufacturing stations permitting concentration of production at selected places, and the closing-down of small and frequently inefficient works, are now in operation. It was apparent during the severe weather conditions experienced during the earlier part of this year that adequate gas supplies could not have been maintained in the absence of this policy. Indeed, supplies in some undertakings would have failed completely.

Coke Oven Gas Supplies

Conditions in the northern area differ from many others by reason of its geographical position in the centre of coalfields and its proximity to the heavy steel industry, rendering the availability of coke oven gas supplies fairly widespread. New sources of such supplies, in some cases purified, have been taken and now constitute a high proportion of the total gas distributed in the area. Having in mind the increased production target of the steel industry, it seems probable that in the course of the next few years coke oven gas supplies may become even more abundant. It remains to be seen, however, whether new contracts will be at existing prices.

This latter aspect, coupled with the fact that the industry is relying on organisations outside its direct control for major gas supplies, gives rise to some misgiving. This particularly applies to those cases where purification is carried out at the coke ovens. There may be many advantages in adopting this course, but, in my opinion, the safeguards as far as purity and calorific value are concerned, are not altogether adequate, when one considers the ultimate responsibility which rests with the gas undertaking.

Almost coincident with the time of the presentation of this address, an additional supply of purified coke oven gas from Fishburn Colliery, situated 16 miles north-west of Middlesbrough, will come into being, and existing contracts elsewhere are to be renewed. Coal gas production is to be concentrated at Stockton, where new carbonising plant on base load is now in operation, while carburetted water gas production for peak loads and emergency conditions is provided at Middlesbrough, Stockton, and West Hartlepool. The 500,000 cu.ft. per day modern intermittent chamber installation at Skinningrove will continue to operate on base load. The whole of this gas is fed into a grid system extending from Cleveland in the south to the new township of Peterlee in the north, and is provided with the necessary pressure raising plant and district governors.

Schemes to interlink the Tees-side area with the Sunderland and Newcastle systems to the north are to be implemented in the near future. The 18-in. main from Fishburn to Middlesborough via Stockton will be tapped to provide for small townships and villages *en route* not previously supplied with gas. As a result of this integration production at the small Guisborough works ceased some time ago, and shortly South Bank and Hartlepool will close down as gas-making units, followed ultimately by Redcar.

This work has not been executed without incurring heavy capital expenditure, and while the benefits may not be immediately apparent, I have little doubt that the economies effected will be reflected in the price at which gas can be sold. I am encouraged in this opinion by the fact that sales of gas are increasing and known prospects in connection with domestic, industrial, and commercial consumers are very satisfactory.

The Coke Position

The position regarding coke must give rise to some anxiety. The days are no longer with us when the acute shortage of coal in this country rendered the inland sale of coke to domestic consumers a comparatively easy matter. Export to Scandinavia has also become more difficult owing to the competition now being experienced from other Continental countries. The abolition of rationing eased matters temporarily, but came too late in the winter to be of any real moment; and it is regrettable that many of the numerous modern solid fuel burning appliances sold recently are still using coal, despite the publicity given to the elimination of smog.

The creation of smokeless zones, desirable as they may be, only touches the fringe of the problem. A great deal of energy and enthusiasm and intensified publicity will be necessary to overcome the traditional predilection of the British public towards the open coal fire, no matter how wasteful of the nation's main asset it may be. The first essential is that the coke supplies available should be of the correct grading for the purpose for which they are to be used, and of reasonably constant quality, though we are largely in the hands of the coal suppliers.

Price is probably the greatest factor against the more extensive use of coke, but we must not lose sight of the fact that revenue from coke now yields a much higher proportion of total revenue than was the case formerly, and has a significant bearing on the price of gas production. A partial solution of the problem may lie in the greater use of water gas plants as a means of preserving a balance between supply and demand—a reversion to a policy which operated successfully in the pre-war periods.

Gas Sales

While it is gratifying that sales in many areas are steadily increasing, there is no room for complacency. In the domestic field, competition from electricity is extremely keen and we no longer enjoy the advantage gained when 'load shedding' created so much uncertainty in the minds of consumers. Fortunately manufacturers continue to produce appliances of pleasing appearance and improved efficiency, but there must be sustained effort by all concerned with sales.

The introduction of the authorised dealer scheme will bring to the gas industry advantages long enjoyed by our electrical and oil competitors, and could be especially effective in districts where the staffing and maintenance of showrooms is not an economical proposition. It will be essential, of course, to obtain the goodwill of the agents by providing them with a suitable range of appliances and assistance in their display, and, where necessary, instruc-

ion on technical and practical application. The extension of simple hire to include water heaters is presumably an attempt to consolidate a demand as yet not fully developed in some districts. Though it is not nearly so attractive as cash sales or hire purchase, it may assist in narrowing the gap between summer and winter loads.

Despite the undoubted advantages gas can claim of cleanliness, ease and range of control, dependability and lower capital outlay, competition in the industrial field from oil is becoming very real. Conditions could be aggravated when refineries now in the course of construction come into full production, resulting in heavy fuel oils being available in greater volume, and probably at lower prices, than now prevail. Greater efficiencies in gas production and utilisation and the realisation of the anticipated economies of integration referred to earlier, enabling gas prices to be maintained at least at their present level, are the only nositive answer. The solution will be difficult to attain with the continual rise in coal costs.

Research

The technique of total gasification is the subject of continued research, and a matter on which very divided opinions are expressed. A significant feature in its favour is the ability to utilise lower priced non-caking coals, and so conserve caking coals, the sources of which are being rapidly depleted. Two area boards have already placed orders for such plants. In view of the recommendation contained in the Ridley Report that the production of smokeless fuel should not be neglected, it would seem that total gasification should be regarded more as an adjunct to, rather than as a substitute for, present methods of gas production, and used as a means of controlling coke output. Similar comment might equally apply to these processes now being developed which involve the catalytic treatment of heavy residual oil for gasification.

Prospecting for sources of supplies of natural gas is being carried out under the ægis of the Gas Council, and one source has already been discovered in the Esk Valley, in the North Riding of Yorkshire. The Northern Gas Board has also applied successfully the methane drainage system to coal pits in the vicinity of Whitehaven. While it is desirable that all investigations of this nature should be pursued to the limit, there is insufficient evidence as yet to indicate that there will be gas available in sufficient quantities as to affect the economy of the gas industry as a whole. Both are subject, in some degree, to the limiting factor of geographical location.

Whatever the trend may be in the search for new and, it is to be hoped, more economical methods of gas production, existing plants, particularly those of post-war construction, must continue to operate for many years to come. Consequently, improvement in their thermal efficiency and economical working are of paramount importance. In this connection the North Western Gas Board is to be congratulated on the experiments it has carried out on the circulation of various gases through the charges in continuous vertical retorts. It may be premature to suggest that anything approaching finality has yet been achieved, but results published so far are distinctly encouraging, and well worthy of the more extensive application the Board now proposes to make.

Recruitment and Training of Personnel

Recruitment of the most suitable type of youth to our industry leaves much to be desired, and probably the first essential is to dispel the persistent tendency for the industry to be regarded as 'unfashionable' in comparison with other industries. The recent admirable publications of the Gas Council and the Institution of Gas Engineers, directed into the proper channels, should do something towards correcting this attitude. That there are excellent opportunities for the ambitious youth is undoubted, though the trend of organisation within the industry towards fewer and larger stations and more extended areas of supply tends to the creation of specialists in a particular branch, rather than the former concept of engineer and manager with his multifarious responsibilities.

The Educational Scheme of the Institution is comprehensive, and, from the numerous proficient technicians it will produce in the course of time, there will surely emerge personnel possessing, in addition to technical qualifications, those more intangible qualities of temperament and personality required for the senior positions at divisional or group level. It is maintained that the fundamental function of successful management is the gift to work intelligently with others to obtain the utmost co-operation between individuals. This in turn requires the faculty to sum up accurately the possibility of any set of circumstances, the ability to implement through others the consequent decision, and, finally, to follow the action decided upon to its ultimate conclusion.

'CHANGE IS OUR ALLY'

A study of industrial questions and of the relations between Government and industry has been produced by 10 back-bench Conservative Members of Parliament. Described as 'a Tory approach to industrial problems, *Change Is Our Ally* is frank, provocative, and controversial. Despite the fact that it is published by the Conservative Political Centre, it expresses solely the views of the authors and does not purport to represent the official policy of the Government and the Conservative Party—although naturally it seeks to influence future policy. Its main purpose is to stimulate discussion.

The book contains a critical analysis of industrial legislation and policy since 1914, dealing with the 'rationalisation' movement between the wars and with central planning in the second world war and from 1945 to 1951. Taking the economic policies of the Conservative Government as a turning point, it examines the principles of the denationalisation measures of 1952-53 and applies them to the rest of publicly and privately owned industry.

The theme of the book is that British industry can meet the demands placed on it only if it is able to adapt itself rapidly to changing circumstances and markets. The 'real co-ordinator' is not a body of planners, but the consumer with a free choice in a competitive market. Proposals are made for improving the efficiency of the remaining nationalised industries and for dealing with private monopolies and restrictive practices.

In a chapter dealing with gas and electricity the authors say the most efficient use of these commodities can be secured in one of two ways, either 'direct intervention by the Government' or 'the exercise of the consumer's free choice of his fuel services, provided that competition between the fuel industries is based on prices, tariffs, and terms of supply which closely correspond to the relevant costs of supply, and that the consumer is enabled to make an informed choice. At present, they contend, the nationalised gas and electricity industries do not represent either method. 'The quasi-independence of the electricity and gas boards and the absence of a co-ordinating authority between the two industries virtually render direct intervention impossible. On the other hand the industries can, and do, pursue policies which deny the consumer a free and informed choice.' Like the Ridley Committee, the authors accept the latter as the only effective and practicable method.

They express regret that the Government should have rejected the Ridley Committee's recommendation for setting up a Tariffs Advisory Committee, because they feel that once a tariff policy had been laid down, a body of that kind would be well suited to 'police' the carrying out of the policy and to guide public opinion with the information it could collect.

Change Is Our Ally, edited by Enoch Powell, M.P., and Angus Maude, M.P., is the joint work of the Members of Parliament known as the 'One Nation Group.' Six of them were co-authors of the well-known book *One Nation*, published by the Conservative Political Centre in 1950; this made far reaching proposals in the social service field, nearly all of which have now been carried out by the Government. The authors are: Robert Carr, Richard Fort, Viscount Lambton, Gilbert Longden, Angus Maude, Hon. David Ormsby-Gore, Enoch Powell, John Rodgers, J. E. S. Simon, Q.C., and John Vaughan-Morgan.

Through the generosity of the Maudslay Society the Junior Institution of Engineers is enabled to offer a scholarship to be known as the 'Maudslay Scholarship' to young engineers to assist them in their technical education and practical training. The scholarship this year has been doubled and will be £300 for one year. Candidates must not be more than 26 years of age and must be engineers, or training to be engineers wholly or mainly interested in mechanical engineering. The closing date for entries for this award for each session is July 31. Further information can be obtained from the Secretary, Junior Institution of Engineers, 39, Victoria Street, Westminster, S.W.1.

Institution of Gas Engineers

Midland Section Welcomes New Chairman

The annual general meeting of the Midland Section of the Institution of Gas Engineers was held at the Queens Hotel, Birmingham, on May 14, at the outset the chair being taken by Mr. W. Macnaughton, the retiring chairman of the Section.

Mr. Macnaughton said that it was with great pleasure that he invested Mr. C. C. Wood as Chairman for the 1954-55 session. After mentioning that Mr. Wood was Auditor of the former Midland Association of Gas Engineers and Managers for some time prior to 1943, Mr. Macnaughton traced Mr. Wood's progress in the gas industry, and observed that his ability had been recognised by his advance from Assistant Engineer and Manager at Wellingborough to General Manager for the Sheffield and Rotherham Division, East Midlands Board, in 1952.

Year of Productive Activity

Mr. WOOD, in acknowledgment, thanked Mr. Macnaughton for the gracious way in which he had referred to him, and in turn he thought it would be their wish that he should acknowledge the very good work which their retiring Chairman had done. They would all agree that the Section had enjoyed a year of productive activity. They were indebted to Mr. Macnaughton for the way in which he had served on the Institution Council; and at a future meeting he hoped it would be his (the speaker's) pleasure on their behalf to present him with a memento of a successful year of office. Also it had been mooted that there should be tangible expression of the services which Mr. John Corrigan had given to the Section as Hon. Secretary.

Earlier in the meeting the annual report and accounts were presented as circulated, and were adopted, arising out of which the CHAIRMAN announced that Mr. H. Pooley (who was Engineer and Manager at Leicester, and President of the old Association in 1907) had sent a donation of 10 guineas for the Benevolent Fund. Three new members of the Section were welcomed: Mr. Cyril Halstead, Engineer and Manager, Rowley Regis: Mr. R. W. Nelson, Distribution Engineer, Birmingham Division; and Mr. J. Burbridge, Leamington. He also offered congratulations to Mr. W. R. Bransom on his appointment as Deputy Chairman of the West Midlands Gas Board, and gave a greeting to Messrs. Belton, Britton, and Langford (retired members from Shrewsbury, Hinckley, and Coventry), as well as to Mr. F. C. Briggs, who at the end of April retired from the office of General Manager of the Wolverhampton Division, W.M.G.B.

Mr. Douglas Green Becomes Secretary

The election of the officers for the coming year, as submitted by the Management Committee, was proposed by Mr. F. H. Bate, and carried. Apart from the new Chairman and Mr. Macnaughton as immediate past Chairman, they were:

—*Senior Vice-Chairman*—A. Allen.
Junior Vice-Chairman—John Corrigan.
Hon. Secretary—D. K. Green.
Hon. Treasurer—J. H. Wainwright.
Auditors—A. Duxbury and J .S. Fox-Andrews.

Ordinary members of the Committee—W. H. Blundstone, E. W. Pickering, and L. H. Thomas.

The nomination of Mr. Wood to serve as District member of the Institution Council for the year was agreed to, and also that of Mr. Macnaughton as an ordinary member of the Council for 1954-57.

Representatives on Education Committee—F. H. Bate, S. K. Hawthorn, and H. R. Hems.

Midland Junior Association Representatives—F. L. Atkin, W. Macnaughton, W. H. Clarke, and A. W. Sanders.

Mr. J. E. WAKEFORD, M.B.E., proposed the adoption of the report, which Mr. A. ALLEN seconded.

In his report on the Midland District Education Committee, Mr. Hems recalled that on June 23 last arrangements were made to reconstitute the Committee in accordance with the 1953 revision of the I.G.E. Education Regulations. The membership should now consist of three representatives each from the Midland Section and from the Midland Junior Gas Association; and in addition there were representatives from technical colleges, H.M. Inspector, and a representative (the education officer) from each area board. Now the area served by the Committee bordered on the areas of the Southern and South-Western Boards, and it was felt that these Boards were already represented on other District Committees. Arrangements were made, therefore, that representatives from these Boards should only attend committee meetings if any matter affecting their interests was to be discussed. Mr. Hems then reported that the resignation of Mr. E. T. Pickering as Secretary, who had been the mainstay of educational activities in the Midlands, had been received with much regret. Unfortunately the pressure of other duties had necessitated his retirement. The Committee had invited Mr. G. H. Potter, of Birmingham, to become Secretary, and having accepted, he had already started his duties.

Mr. Hems continued that notes officially prepared for him in reference to the last Higher Grade examinations under the old Education Scheme held in 1953 showed that the results were extremely poor. Of 171 entries for the Higher Grade (Manufacture) there were only two first-class passes, and 51 second class. For the Supply Examination, out of 128 entries there were no first-class passes and only 36 second class. Thus passes amounted to about 30% of the total entries. From his particular interest on the utilisation or supply side of the industry he was very much concerned about the results, and the lack of students coming forward on the supply side.

The Benevolent Fund

The SECRETARY (Mr. D. K. Green) announced that the Management Committee of the Section had decided to recommend a donation of £50 to the Benevolent Fund, which the meeting approved. Mr. C. F. W. RENDLE expressed his delight at this contribution following the handsome donation for Coronation year, when 25 guineas extra was voted and members contributed another £28. The Midland Association had long held the proud position of having the greatest percentage of members of the Institution as contributors; but he now understood that this was no longer the case. The reason was that since the Association became a Section of the Institution they had added to their membership from among younger men of the industry, and probably these members had not had the matter brought sufficiently vividly to their notice.

Mr. G. E. Currier, O.B.E., on behalf of the Institution President and the Fund Committee, thanked the Section for its generous donation, and said they appreciated the handsome contributions coming from the Midlands during the last three years.

Before vacating the chair Mr. Macnaughton remarked that it had been the custom of the Association and the Section to present to its past presidents and chairmen some memento of their year of office. It had been left to Mr. Wakeford to indicate what he would like, and he had the greatest pleasure in presenting Mr. Wakeford with a pair of binoculars.

In acknowledgment Mr. J. E. WAKEFORD, M.B.E., said he greatly valued the honour done him two years ago, which he regarded as a mark of confidence by his professional colleagues, when they elected him Chairman of the Section. He thanked them for the gift and memento, which would remind him of many happy years among them, which he hoped would continue.

Mr. MACNAUGHTON then expressed his appreciation of the support given him by the Committee, and particularly the help from Mr. John Corrigan as their Hon. Secretary. He was sure that Mr. Green, of Coventry, to succeed Mr. Corrigan, their new Secretary would have the full support of Mr. Allen, their Senior Vice-Chairman. The Management Committee considered that Mr. Corrigan had rendered such signal service to the Section as Secretary that they readily nominated him as the new Junior Vice-Chairman.

Mr. WOOD then gave his address as Chairman of the Section.

Proposing a vote of thanks, Mr. ALLEN mentioned that recently Mr. Wood had moved to the area of the East Midlands Gas Board; and they of the W.M.G.B. welcomed contact with members of the East Midlands area.

Mr. CORRIGAN seconded the vote and added his personal congratulations to Mr. Wood on his election as Chairman.

Luncheon Speeches

Prior to meeting a luncheon was given to members at the invitation of the Chairman and members of the East Midlands Gas Board. Mr. W. MacNaughton presided.

Mr. WOODS proposed the toast of the East Midlands Gas Board. The gathering, he said, was representative of members of the Section from the East Midlands, the West Midlands, and the Southern areas; and he thought it was good that the Section boundary did not coincide with a single area board boundary. As a member of the East Midlands team it was a pleasure to him to propose a toast. Most of the Section's previous meetings had been held in the West Midlands, the W.M.G.B. having acted as hosts. He understood that this courtesy was now to be shared. In common with other boards, the East Midlands Gas Board had had to face many problems since its formation. Initially the Board inherited 100 separate undertakings of all types and sizes—good big ones; good little ones; and others not so good. He thought that no business could be regarded as successful unless it paid its way, its employees were

enthusiastic and contented, and its customers were satisfied with the service it provided.

On the first point the East Midlands had certainly paid its way and even found it possible a few months ago to reduce some of its prices. On the second point, great efforts had been made to merge the 100 original undertakings into a corporate whole and to develop suitable systems of management to control the new organisation, and, by acting as good employers, to foster loyalty. To achieve a change of this magnitude great attention had had to be paid to the problems of human relations which constantly arose in times of change. On the third point, service to the consumer was the fundamental consideration which determined the Board's activities. It was, he thought, unfortunate that public opinion seemed biased against nationalisation. Mistakes or misfortunes that occurred in all organisations, large or small, were exaggerated out of all proportion when they became public knowledge, and if they could in any way be related to nationalisation. They must hope that this was a passing phase.

The East Midlands Gas Board, under its Chairman Mr. Sydney Smith, and his predecessor, Mr. Henry Jones, had paid great attention to the question of service to the customer and human relations within the Board. It had laid the foundations of an organisation which he thought would stand the test of time.

Happy East-West Relations

Mr. SYDNEY SMITH, responding, said the fact that the E.M.G.B. was entertaining the Section that day was indication of the happy relations which existed between East and West Midlands, and between the officers within the two organisations. He paid a tribute to the work of the district sections of the Institution, expressing the opinion that after five years of nationalisation they were beginning, as an industry, to see the fruits of earlier planning. Without exception every gas board in the country was in a position today to point to substantial economies which had resulted from the provision of bulk supplies of gas, enabling uneconomic manufacturing stations to be closed down, and from increased efficiency in production. In this regard the West Midlands had had notable success—success which would have been impossible without the resources upon which it was now possible to call.

Economies had been brought about largely by team work, and that team work had its origin in the Institution of Gas Engineers. Nationalisation of the gas industry had a flying start because Jack, Leslie, Bill, and George, and many others like them, knew and trusted each other. There were many problems. Expansion, however, had been continuous, though at a slower rate than might have been expected. There was undoubtedly plenty of scope for further increase in efficiency, not only in production and utilisation and from integration, but in the search for new techniques of gas manufacture and in methods to reduce the burden of paperwork with which they were all in danger of being bogged-down. He thought there was a good prospect of success in the search for natural gas. If this should prove true, it obviously would have a marked influence on the future economics of gas supply, and possibly on the nation's economic structure.

Increased prices of gas during the last five years had been due entirely to increases in costs of raw materials, wages, and salaries, over which they had no control. But it was true to say that if these increases had not been imposed upon them, all gas boards in the country could have substantially reduced prices through economies brought about through their own efforts.

Mr. E. CURRIER, O.B.E., (Past President of the Institution of Gas Engineers) proposed the toast of the Midland Section, conveying the greetings of Mr. Haynes and of those of the Institution. Speaking of the work of the Institution, he paid tribute to the assistance which had always been forthcoming from members of the Midland Section.

Mr. MACNAUGHTON, responding, said the Institution had found a fellowship of which they were proud; and they were proud of the contribution which the Midland Section had made to the Institution's activities and reputation.

North of England Section

The third annual meeting of the North of England Section of the Institution of Gas Engineers was held at the Queens Hotel, Stockton-on-Tees, on May 7, when a large attendance of members, accompanied by their ladies, spent an interesting and enjoyable day. The morning programme included a visit for the ladies to the Norton Road showrooms at Stockton, where they were able to view gas industry films. Concurrently, the business of the Section was held at the Queens Hotel. The two parties re-joined for lunch, after which the ladies visited the factory of W. H. Pumphrey, Ltd., sugar manufacturers, at Thornaby-on-Tees, while members of the Section inspected the works of Head Wrightson & Co., Ltd., in the same town. The parties met again later for tea in the Queens Hotel, Stockton.

At the business session, members, who included Mr. E. Crowther, C.B.E., Chairman, Northern Gas Board, and the Deputy Chairman, Mr. J. R. Bradshaw, were welcomed by the retiring Chairman of the Section, Mr. G. W. PERKS, who also extended a cordial welcome to Mr. J. T. Haynes, President of the Institution of Gas Engineers.

The HON. TREASURER, Mr. W. Sutcliffe, presenting his report, referred to the half-subscription for retired members, and Mr. PERKS, announcing the decision to contribute the sum of 20 guineas to the Benevolent Fund of the Institution, paid tribute to the extremely good work done through the Fund.

Mr. J. T. HAYNES said it gave him great pleasure, as Chairman of the Benevolent Fund, to express thanks to the Section for their contribution, which, he added, was a large amount in relationship to the membership. He thanked the Chairman for the work he had done, and also paid tribute to the efforts of Mr. F. Wilson, of Darlington, the Section's Benevolent Fund representative.

Mr. Perks then delivered his Chairman's Address (see page 574).

A vote of thanks for the Address was moved by Mr. F. L. Scaife, who as a colleague paid a tribute to Mr. Perk's great sense of duty. In his Address the Chairman had referred to the value of integration and the many benefits which followed—which constituted one of the advantages of nationalisation.

Election of Officers

The following officers were elected for the ensuing year:

Chairman—W. R. Garrett. Immediate Past Chairman—G. W. Perks. Senior Vice-Chairman—W. Sutcliffe. Junior Vice-Chairman—J. R. Cleator. Hon. Secretary—F. J. Webster. Hon. Treasurer—D. Yule. Hon. Auditors—G. E. Anderson and A. O. Old. Ordinary Members of Committee—A. Field and J. R. Matthew.

Mr. W. R. Garrett was elected representative to serve as District Member of the Institution Council for 1954-55. Mr. J. W. Pallister was re-elected as a member of the Hovey Education Trust Committee; and Messrs. J. E. White, W. Sutcliffe, and A. Field were elected members of the District Education Committee.

Mr. PERKS, in handing over the Chain of Office to his successor, said that though Mr. Garrett had not been member of the Section for a long time, he had been a very active one. He had held a position of high responsibility in the South prior to coming North in 1946; and he wished Mr. Garrett a happy year of office.

Mr. GARRETT, replying, said it gave him great pleasure to be elected Chairman of the North of England Section. He realised the heavy task which lay ahead, but felt he could rely on the support of all the members. He was certainly looking forward optimistically to his year of office. The North of England Section fulfilled a useful purpose; and he would endeavour to ensure that its reputation did not suffer as a consequence of his election.

Mr. Garrett then presented to Mr. Perks a Chairman's Certificate, and congratulated him on his career. Mr. Perks had started at Stockton when he was 16 years of age, and he eventually became Engineer of the Stockton undertaking. All congratulated him on his recent appointment as Deputy Divisional General Manager, Tees-side.

Proposing the toast of 'The Guests' at a luncheon in the Queens Hotel, Mr. PERKS said how they appreciated the presence of the Mayor of Stockton and also of the Town Clerk. Mr. Perks also extended a welcome to Mr. J. T. Haynes, who had taken such a great interest in the Section, to Mr. E. Crowther, Chairman, and Mr. Bradshaw, Deputy Chairman, of the Northern Gas Board, both of whom were members of the Section, and also past presidents.

Following a charming response for the ladies by Mrs. PERKS, Mr. HAYNES said he brought greetings from the Institution. He appreciated and understood the work the Section was doing through its representatives. During his year of office he had visited all the organisations with the exception of the Northern Juniors—and this through no fault of his own. Continuing, Mr. Haynes said they had every reason to feel proud of the gas industry, but he queried whether they advertised themselves adequately. Did the public realise that, despite inferior coal, the industry had maintained the quality of gas. Also, the public should realise that the gas industry had experienced less labour friction than any other industry. He congratulated Mr. Perks on upholding the traditions of the North of England

Section, and extended a welcome to the new Chairman, Mr. Garrett, and to Mr. G. E. Anderson.

Proposing the toast 'The Borough of Stockton-on-Tees,' Mr. E. CROWTHER said it was a high compliment to the Section that it should be honoured by the uresence of the Mayor of Stockton-on-Tees and of the Town Clerk. All of them knew something of Stockton, and they were impressed by the vigour shown by Tees-side and its potentialities. It was the cradle, and was now the home, of many engineering industries. It offered a gateway to a rich countryside which sustained both Stockton and its neighbouring towns. Mr. Crowther concluded by expressing the thanks of the Northern Gas Board to the Borough for the admirable and orderly undertaking which was placed in the Board's charge on vesting day. The fact that five years had passed and that the gas price in Stockton had risen little was a compliment to the Borough's moral sense of financial responsibility.

Replying, the MAYOR OF STOCKTON, Councillor Norman E. Brown, M.M., J.P., thanked Mr. Crowther, and paid tribute to his old friend Mr. Scaife for his years of service. It was due to Mr. Scaife's advice that the Board found the undertaking's finances in ship-shape condition.

Gas Consultative Councils

EASTERN

Tributes to Retiring Chairman

A meeting of the Eastern Gas Consultative Council was held in London on May 17, when the newly appointed Chairman, Councillor Lieut. Col. R. I. Musson, M.C., C.C., of Barnet, was in the chair. He was appointed Chairman by the Minister of Fuel and Power on May 12, for a period of two years to succeed Alderman Richard Turner, of Bedford, who had been Chairman since the inception of the Council in May, 1949. Colonel Musson was appointed to the Tottenham Divisional Committee in February, 1950, and had been a member of the Council since February, 1951.

Tributes were paid to the retiring Chairman and it was resolved that the Council record its high appreciation of the distinguished services rendered by its first Chairman. Throughout the Council's early formative years Alderman Turner had guided its affairs with conspicuous knowledge and ability from his first appointment in May, 1949, to May, 1954. The Council took leave of him with sincere regret and wished him many happy years of retirement.

New Chairman's Task

Colonel Musson said he was invited to serve as Chairman and he had felt it his duty to accept the Chairmanship; he would do his best to make a success of it. His first task would be to prove that he could keep the machinery working as well as it had up to now; the second task would be to see if he could improve it in any way. He was determined to make a good job of the work started by Alderman Turner.

The Deputy Chairman, Mr. C. H. Frewer, Norwich, in seconding the resolution recording the appreciation of the services rendered by Alderman Turner, felt that if it had been left to the Council to elect a new Chairman he was sure Colonel Musson would have been the unanimous choice. On behalf of the Council he offered their sincere congratulations to him and he said they would give him all the support they could. He felt that in course of time the Council would be as proud of Colonel Musson as they were of the retiring Chairman.

A draft of the Council's fifth annual report which set forth its functions over the past year, was approved for submission in accordance with Section 10 (4) of the Gas Act, 1948.

The Council received notification that the pithead price of gas coal was increased by 3s. a ton with effect from May 3. It agreed to send a resolution to the Minister of Fuel and Power noting with great concern this further increase in the price of carbonising coal which might lead to further increases in the price of gas and its by-products. It again invited the Minister to note that the cost per ton of coal carbonised in the Eastern area was the highest in the country and asked him to consider seriously again the question of equalisation of coal prices as far as the gas industry was concerned.

The Council's Tariffs Sub-Committee will keep the question constantly under review.

Notification was received from the Eastern Gas Board that a supply of gas is to be afforded in the Boreham and Hatfield Peverel district in the Ipswich Division. The flat rate price has been fixed at 21.5d. per therm.

Quarterly statements of tests made of the gas supplied by the Eastern Gas Board for the quarter ended March 31 were received. These showed that the Board had met its statutory obligations in regard to purity, pressure, and calorific value in respect of the works for which a statement had been issued, except that on two occasions in the supply to a factory in Braintree, the pressure was found to be less than prescribed. The Board's report on these discrepancies was received and noted.

SCOTTISH

Further Development Schemes

The Scottish Gas Board agreed, during March and April, to development schemes totalling £438,622, it was reported to a meeting of the Scottish Gas Consultative Council at Edinburgh on May 19. Glasgow Division was responsible for the major share, with projects amounting to £237,112. Other divisional totals were: Lanarkshire, £101,945; Central, £53,512; Northern, £20,376; South East, £13,764; Edinburgh, £11,913.

The main item in the Glasgow total is £100,000 for the provision of a continuous tar distillation plant at Provan chemical works. It is expected that a start will be made to the operations this year or next.

Alterations and repairs in new offices at Hanover Street, Glasgow, account for £72,008, and general clearing up work arising from the re-construction at Dawsholm gasworks a further £30,000. This work consisted of the demolition of old plant and buildings replaced by new plant; levelling and surfacing these areas; surfacing of access roads to oil storage tank and Temple Works; remedial works to existing pump house and the old derelict buildings at Temple Works which are now housing Connersville meters and governors; reconstruction of a boundary wall; and repair and renewal or enlargement of existing drains, which were in a bad state due to age and were not of sufficient capacity to take increased discharges.

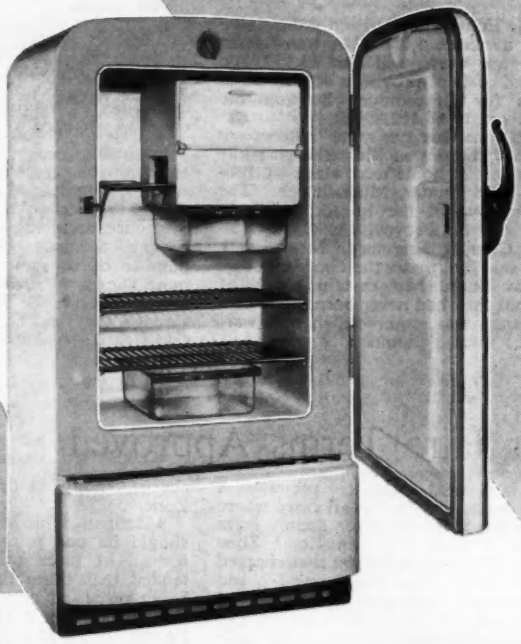
The sum of £18,000 is to be spent, between now and 1956, on the reconstruction of the central stores and workshops at Milan Street, Glasgow. As long ago as 1938/39 proposals were put forward to reconstruct these premises, but the outbreak of war prevented the plan being carried out. The existing facilities were provided approximately 30 years ago and are completely inadequate for the increased volume of work now centred on this depot. It is proposed to increase the facilities for the handling of vehicular traffic and to erect offices for the existing staff—at present 14 people share one small room and one temporary wooden hut.

Lanarkshire Plans

The Motherwell and Wishaw district is responsible for £48,925 of the Lanarkshire Divisional total. Of this sum £34,560 is earmarked for the replacement of existing 8 in. main by a 12 in. main with mechanical joints (6,025 yards) at Wishaw gasholder station. The existing main between Motherwell gasworks and Wishaw holder station is constructed with steel-welded joints and was laid in 1927/28. Its condition is deteriorating rapidly, giving rise to frequent interruptions in supply in order to carry out repairs. In addition the main is now too small to meet the present-day requirements and continuity of supply is endangered during the winter months. A start is to be made to the work next year. That is also the date for undertaking a new 15 in./12 in. low pressure feeder main between Netherton Cross and Netherton housing site. This will cost £11,365. The sum of £3,000 is set aside for the conversion of the present office building at Merry Street into a showroom. It is added that the condition of the Motherwell showrooms at Windmillhill Street has been causing some concern for some time since the local authority condemned the house property above. The building appears to be unsafe and the risk of collapse is by no means remote. In the Airdrie district a new showroom at Hallcraig Street, Airdrie, is to be provided at a cost of £3,589.

Mainlaying proposals account for most of the totals in the Hamilton District (£10,032) and the Lanark County District (£39,399).

Features of the Central Division total include :—Developments at the Stirling works, £34,617, resetting of No. 1 setting of eight Glover-West 50 in. vertical retorts, £7,862; replacement of C.W.G.



The MAIN 32 REFRIGERATOR

Guaranteed for 10 years

Features of the Main Refrigerator include ample storage space, a larger than usual frozen-food compartment and superior finish. An absorption-type model, it is silent in operation and cannot cause interference to radio or television reception. Attractive appearance with white enamelled cabinet and vitreous enamelled interior. Gross capacity 3.2 cubic feet. Frozen-food storage locker holds about 4lbs. of quick-frozen food and 2lbs. of ice. The cabinet and accessories (except plastic dishes) are guaranteed for ONE YEAR and the sealed cooling unit for TEN YEARS.

MAIN REFRIGERATION LTD., GOTHIC WORKS, EDMONTON, N.18

Note the name-made by MAIN

R 6

Why you should specify the Dresser STYLE 60 leak clamp!

A Superior Clamp at low cost.

Wide range of adjustability for all classes of socket and spigot joints.

Complete size range from 3 inch to 48 inch.

Proper weight and design to provide strength and sealing power.

Installation—quick and easy.

DRESSER STYLE 60 adjustable leak clamps

Direct from works to customers and obtainable only from

DRESSER MANUFACTURES (ENGLAND) LIMITED *(One of the Dresser Industries)*

39 Victoria Street, London, S.W.1.

Telephone: Abbey 5238 Telegrams: Dresclam Sowest London.

FW. 12

plant, £25,622; replacement of old railway weighbridge by modern apparatus, £1,133; repairs and improvements to purifiers in Perth, £7,000; retort repairs in Buckhaven and Leven District and the provision of a simple external coke hopper with screens, £11,895.

An interesting item in the Northern Division total is that of £1,250 for the provision of a mobile showroom, with provision for a self-contained gas, water, and electricity supply, for Aberdeen district is to spend £3,260 on the installation of a concentrated liquor plant and £2,500 for the provision of a new static washer. The provision at Inverness of an additional 2 million cu.ft. per day vertical water tube condenser will cost £3,900.

The provision of mains and services in various housing schemes accounts for the greater part of the South East Division total.

In the Edinburgh Division the installation of duplicate 1,000 kVA transformer at Granton works will cost £3,750, and increased costs of provision of mains and services for Gracemount housing site will amount to £8,163.

Allegations that gas meter readers entered three houses in Musselburgh while nobody was at home were made by Provost Robert Hunter, Musselburgh. The doors of two of the houses had been locked, said the Provost.

The Council Secretary, Mr. A. B. Leitch, said that under the Gas Act, 1948, the Gas Board had certain rights of entry, but they had never been used. If a forced entry was required a sheriff's warrant was always obtained.

Provost Hunter said he would raise the matter again.

Referring to gassing accidents, Councillor S. Leitch, Glasgow, Deputy Chairman, who presided, suggested that the Scottish Gas Board might advise local authorities of a safety cut-off valve that could be attached to meters.

Councillor Leitch, who was replying to an enquiry by the Central Scotland Divisional Committee whether positive action should be taken by publicity or otherwise to reduce accidents, said there were few gassing accidents compared with the number of consumers and gas was no more dangerous than any other fuel. He added that at the last meeting of the Council they had been satisfied with the Gas Board's explanation of the situation.

NORTH EASTERN

Refrigerator Hire Terms Approved

At a meeting of the North Eastern Gas Consultative Council in Leeds on May 17, Dr. R. S. Edwards, Chairman, North Eastern Gas Board, announced that the Board, after giving careful consideration to methods for new loads, had put into operation simple hire terms for refrigerators. Two different makes of refrigerators were being offered of the 1¼ cu.ft. size, at a weekly charge of 2s. 9d. to 3s. 3d., the payments being made quarterly in advance. The agreement was on a minimum two-year basis, and when the appliance had been in the custody of the consumer for five years, the weekly payments would be halved.

Dr. Edwards said the gas refrigerator was an excellent appliance which could be a real benefit to the housewife, especially with the increasing availability of foodstuffs, and as a contribution to hygiene.

The fixing of these appliances would depend on the demand and the availability of supplies, and some people might have to wait a little, said Dr. Edwards. He also assured the Council that the adoption of simple hire was not a reversal of the Board's policy, as it felt that there might be specific cases where simple hire of appliances might be used to advantage. The new scheme would give a steady increased consumption to the Board, which he claimed was the first in the country to provide such a service for consumers.

Step in the Right Direction

Alderman Hardy said that this was a step in the right direction, and a very desirable development. Mrs. Smith, Deputy Chairman of the Consultative Council, asked Dr. Edwards how soon the Board might be able to offer other appliances on simple hire terms, such as drying cabinets which would meet a real need from the housewife's point of view.

Dr. Edwards, in reply, asked if the Board could be given time to test the reaction of the public to the appliance now being offered.

When Alderman H. Sutcliffe, of Horsforth, expressed the opinion that not sufficient attention was drawn to the advantages of using gas in milder weather, Dr. Edwards commented that special sales of gas heating appliances were held in August and September at reduced prices to encourage greater public support. One difficulty was the fact that some appliances were still subject to the hire purchase order, which required one third deposit to be paid and the balance within 18 months.

The Hull local committee submitted a motion suggesting that in all cases where gas was supplied wholly or mainly from the grid or from works in No. 1 Zone the price charged should be that charged in No. 1 Zone. The voting was 7-7, and the Chairman, Alderman W. Regan, of Halifax, declared the motion not carried. He also ruled out of order an amendment by Alderman J. H. Whitaker, of Todmorden, that in all cases the price charged should be that charged in No. 1 Zone.

Alderman Whitaker urged that there should be one price for all consumers instead of three price zones and contended that those in other zones were being penalised because of the hypothetical theory that coal prices were higher. People in Todmorden had suffered, he said, and their prices had risen considerably compared with most other districts.

WALES

Coal Price Discrimination Alleged

The Wales Gas Consultative Council is to ask the Minister of Fuel and Power to meet a deputation on the question of alleged discrimination in respect of coal prices charged in South Wales.

A sub-committee of the Council came to this decision at a meeting at Cardiff on May 24 after the Chairman of the Wales Gas Board, Mr. T. Mervyn Jones, had announced that the price of gas in the Board's area would have to be increased by 1d. per therm to meet the rise in costs.

Mr. Mervyn Jones explained that since April 1, 1953, the date of the last increase in the price of gas, costs had risen by £361,000. Wages and salaries accounted for £80,000, railway rates for £60,000 and increases in the price of coal £170,000. Recently introduced industrial and commercial tariffs and concessions to consumers cost the Board a further £51,000.

'The product of 1d. per therm on the sales of gas for the whole of the Board's area is estimated to be £310,000,' he said. 'Allowing for ceiling prices and for the restricted application of an advance to certain industrial, special contract and two-part tariff domestic consumers, the net yield of 1d. per therm is estimated to be £260,000.

Penny Per Therm Rise

'An increase in the price of gas of 1d. per therm would, accordingly, leave approximately £100,000 to be met from increased efficiency and economies in operation. The Board proposes an increase of 1d. per therm to become effective from and after the meter readings for the June quarter, 1954.'

Mr. Mervyn Jones went on to say that the Board wished to draw attention to the way in which the recent coal price increases had been applied, with particular regard to the excessive increase which had been applied in respect of South Wales coals, from which source the Board drew rather more than 50% of its coal requirements for carbonisation. The average increase operated by the various Coal Board Divisions from which the Wales Gas Board drew its supplies were: 'A' Division, 3s. 4.452d. per ton; 'B' Division, 2s. 11.638d. per ton; 'C' Division, 6s. 8d. per ton; 'D' Division, 1s. 4.857d. per ton; and South Western Division, 8s. 0.62d. per ton.

These increases had caused a greater increase in the average price of coal in the case of the Wales Gas Board than any other gas board in the country. Examples of increases for individual coals were: Tirpentwys Washed Nuts, 9s. 11d.; Wern Tarw Large, 9s. 1d.; and Mynydd Washed Nuts, 9s. 5d. The discriminatory nature of these increases in the case of South Wales coals would have the unfortunate consequence that increases in the price of gas in so far as they were related to coal costs would necessarily be more severe in Wales than in other parts of the country.

Dearer Coke Oven Gas

Not only did the increase advance the cost of manufacturing gas at works with consequentially higher prices of gas to consumers, but by reason of the operation of the usual slide clauses in coke oven gas contracts it also increased the cost to the Board of the large quantities of coke oven gas taken from installations now established in South Wales, the prime purpose of which was to meet the expanding demand of the steel industry for metallurgical coke.

These coal slides were, generally, linked to the South Wales level of coal prices. At the same time the trend and tendency of fuel oil prices was in a downward direction. Accordingly, the present coal price increases would still further accelerate the tendency of industry to use imported fuel oil. If the price

charged for coke oven gas was such as to make the resultant price of gas to the consumer higher than the price of other fuels then the inevitable consequence would be that coke oven gas would not be put to its full, efficient, economic use. While these trends of prices continued the tendency was likely to be that coke oven gas might be blown to waste.

The present penal increase in the price of coals used at coke ovens in South Wales was therefore directly contrary to the operation of a proper national fuel policy.

Not only was there discrimination in respect of South Wales coals compared with other parts of the country, but even within the area of the Wales Board itself there were cases of the same coal being sold to merchants at prices lower than those charged to the Gas Board. The Board had developed the use of certain coals of lower than normal quality and consequently at a lower price, to the benefit of the national economy and to the advantage of gas consumers. The price of these coals had later been increased to an unjustifiably greater extent than other grades and thus an economy of which the Board took advantage had been nullified.

An example of this type of variation was seen in the case of Risca Washed Nuts and Beans, where the price increase from May, 1949, to the present time had been 30s. 8d. per ton, compared with a coal from another Division—Cortonwood—where the increase had been only 20s. 4d. in the same period. The effect of actions of that nature was clearly of disadvantage to the gas industry in Wales, its consumers, and employees.

WEST MIDLANDS

Gas Sales Affected by Weather

Fluctuating conditions, among which the weather was an important factor, affected sales of gas in the West Midlands last year, but over the whole period of 12 months an increase of 0.2% was recorded. On the six months ended March 31 there was an increase of 0.5%. These increases were reported at a meeting on May 17 of the West Midlands Gas Consultative Council by Mr. G. le B. Diamond (Chairman of the West Midlands Gas Board). The Council met in Birmingham and was presided over by Ald. W. H. Malcolm (Coventry).

Mr. Diamond said the total gas distributed in the half year ended March 1954, was 39,867,859,000 cu.ft. as against a total of 39,665,748,000 cu.ft. for the corresponding half year to March, 1953. The year's figures were 70,724,326,000 cu.ft. as against 70,555,140,000 cu.ft.

A Definite Upward Trend

It was explained that the prolonged mild weather throughout the autumn and the first part of the winter adversely affected the demand, and at the end of 1953, sales were running at 1.7% below the 1952 level. The last three months of the period, however, saw a considerable change, and while the abnormally cold weather in January and early February undoubtedly played its part in the higher consumption, quite apart from this there were definite indications of a general increase in sales, especially to industry. But sales of gas generally fluctuated proportionally with variations in temperature until the last three months.

In the week ended February 7 most districts experienced record peak demands, and the total output for the area was more than 10% greater than the previous highest. Many gasmaking installations were taxed to capacity, but pressures generally were maintained above the statutory minimum. The interconnection of a number of manufacturing stations enabled gas to be transferred on a much higher scale than hitherto, and the Board's plans include further schemes for augmenting and improving these links, not only to safeguard supplies at periods of peak demand, but in addition to run plant more economically at other times.

Coal and Coke Figures

Stock at March, 1954, stood at 176,000 tons as against 227,600 tons at March, 1953. At no time in the six months to March, 1954, did stocks fall below safety levels, but they were considerably lower than in the previous year. Receipts for gasmaking in the 12 months were 24,000 tons greater than in 1952-53 but consumption increased by over 80,000 tons, and in view of the increased capacity of carbonising plant now available and further additions to be made in 1954-55 uncertainty of the availability of additional coal supplies is a matter of concern.

Coke sales for half year were 701,400 tons, and for the corresponding half year, 1953, 673,000 tons, an increase of 4.1%. For the year the sales were 1,183,700 tons as against 1,099,500 tons, an increase of 7.7%.

The heavier summer sale coupled with the mild weather up to the end of 1953 reduced the demand to some extent during the first half of the period, and stocks rose appreciably until January, after which disposals broke all records, resulting in an increase of 84,000 tons for the year. In one week nearly 36,000 tons were despatched from the Board's works, 5,000 tons more than in any other similar period.

This, Mr. Diamond pointed out, represents a tremendous effort on the part of the employees when it is considered that at the same time withdrawals of coke from stock made heavy calls upon labour and mobile reclamation machinery. Stocks are regarded as reasonable at present. Considering the uncertainty of the future coal position consumers would be well advised to ensure adequate supplies for the winter by purchasing in the summer months.

Plant Extensions

Plant extensions of a net total of 3.58 mill. cu.ft. per day were brought into operation during the six months, making a net total of 13.23 mill. cu.ft. during the financial year 1953-54. Since vesting day plant capacity added in the area amounts to 56.81 mill. cu.ft. per day, which represents 22.6% of the capacity taken over. During the same period inefficient and worn out works at Bewdley, Henley-in-Arden, Oldbury, and Shifnal have been closed, and bulk supplies afforded from Kidderminster, Solihull, Birmingham (Swan Village) and Wellington respectively.

Towards the end of 1953 the second connection between Stoke-on-Trent and Leek was completed, allowing the plant at the latter to be worked on base load and the surplus gas transferred to Stoke to help the pottery industry. In September Warwick was connected with Leamington. The main connecting Leamington with the Coventry district at Kenilworth has now been completed, and shortly the Warwick works will be closed. Bromsgrove has been linked with Redditch, and at an early date the works of the former will also be shut down.

Employees' Credentials

Among other matters it was stated that most of the Board's employees were provided with some form of credential to identify them, but they were looking for a uniform credential.

The scheme to affect certain sales of equipment through dealers had been begun and the numbers appointed would be spread out to include other districts than those now specified.

In reference to the dust problem at Redditch it was stated that approximately £20,000 had been spent over the last five or six years in tackling the dust problem alone. Mr. Diamond said he must admit nevertheless that the trouble had not yet been overcome, but the engineers were taking energetic measures by studying every part of the plant to see what more could be done.

Society of British Gas Industries

The annual meeting of the Society of British Gas Industries was held on May 25 when, as recorded in our 'Personal' column, Sir Ernest Smith was elected President for the year 1954-55, and Mr. J. S. Simpson (Director of Woodall-Duckham Construction Co., Ltd.) was appointed Chairman of the Council.

Other appointments were confirmed as follows:

Vice-Chairman, Colonel W. E. Gibbons; *Hon. Secretary*, F. P. S. Stammers; *Hon. Treasurer*, Capt. (E) W. Gregson, R.N.R.; *Elective Members*, F. B. Holmes, W. H. G. Roach, S. J. Beale, and Colonel W. R. Glover.

Chairmen of Sections: 1, retort settings (vacant); 2, condensers, washers, and purifying plant, A. G. Grant; 3, mechanical handling plant, W. Morland Fox; 4, gasholders, C. Robson; 5, gas meters, W. D. Wilson; 6, gas cooking and space heating appliances, R. Knight; 7, gas lighting equipment, gas fittings and burners, A. S. Hands; 8, manufacturers and contractors for gasworks, not included in the foregoing or following sections, W. A. Lowe; 9, industrial gas equipment. P. Hopkinson; 10, refractory goods, A. Green; 11. exhausters, boosters, and compressors, F. H. Wilkinson; 12, chemical and by-product plant, I. M. O. Hutchison; 13, water gas and producer gas plant, Gordon Helps; 14, gas wash boilers and washing machines, W. F. Andrews; 15, pipes, tubes, and fittings, A. Bradbury; 16, gas water heaters, R. J. Rogers; 17, scientific instruments, G. A. Edwards; 18, coke ovens, R. B. Potter.

Women's Gas Federation

Annual Meeting a 'Mad Hatters Tea Party'

The platform at the nineteenth annual general meeting of the Women's Gas Federation. Mr. Geoffrey Lloyd, Minister of Fuel and Power, is seen addressing a crowded audience.

The nineteenth annual general meeting of the Women's Gas Federation was held at Caxton Hall on May 25. A large percentage of the women present made the most of the warm weather and wore summery frocks. Dame Vera Laughton Mathews, D.B.E., Chairman of the Executive Committee, moved that Miss K. M. Halpin, O.B.E., be re-elected President, and this was seconded by Miss P. J. E. Dodd. Dame Vera presented the annual report for 1953-54, and the adoption of this report was moved by Mrs. L. W. Roberts, Chairman of the Harrogate Branch, and seconded by Mrs. R. L. Siffleet, Chairman of the Brighton Branch. The audited statement of accounts for 1953-54 was adopted, and the Vice-Presidents were re-elected *en bloc*. The guest speakers were Mr. Geoffrey Lloyd, P.C., M.P., Minister of Fuel and Power, Colonel Sir Harold Smith, Chairman of the Gas Council, and Lady Burnham, J.P., Chief Commissioner for England for the Girl Guides.

Topsy-Turvy

MISS HALPIN christened the meeting 'The Mad Hatters Tea Party,' as everything happened completely out of order. Mr. Geoffrey Lloyd spoke near the beginning of the meeting as he had to be back in the House by 3.30 p.m., and at one stage, the motion for adoption of the annual report was passed before it had been proposed. Sir Harold Smith said that Mr. Geoffrey Lloyd had 'stolen his thunder' and mentioned a number of the points which he had intended making. He remarked that the Minister had said nothing about what the Government was going to do, just what the gas industry had done. However, notwithstanding, he thought he would continue with his speech as planned.

There were many apologies for absence, due mainly to the rail strike, and Miss Halpin said that it might have been all for the best as the hall was already full, and they had expected about 100 more people. She spoke mainly to the branches, suggesting new enterprise, and exhorting them not to rest on their laurels. Miss Halpin stressed that the job of home-making is the most important in the country. It was also pointed out by Miss Halpin that this was the first time they had had a Minister of this Government on the platform.

MR. GEOFFREY LLOYD said how sorry he was that he was not able to be present last year, owing to the demands of Parliament, and regretted that he had to hurry back to the House. He assured the meeting that this had nothing to do with the decision the night before to raise M.P.s' salaries! He recalled what an important part Birmingham had played in the early development of gas, and that both he and Sir Harold Smith were connected with Birmingham.

New Vistas for Gas Usage

Mr. Lloyd emphasised how much gas depends on coal, of the right quality, and he thought that the industry had shown a great spirit of enterprise, and he congratulated it on its present effort in searching for natural gas in Great Britain. Obviously, he said, if the search was successful, it would be of tremendous importance to the industry, and would open up new vistas for gas usage. It was pleasing that the gas industry had entered into partnership, as it were, with the oil industry, and he wished them all success. The industry was making experiments to see if it could treat successfully for gas-making purposes coals which had hitherto not been suitable for gas-making. It was of great interest to the Ministry that, in addition to the other investigations, the industry had been experimenting with the total gasification of fuel oil with a view to making gas without recourse to coal or coke.

DAME VERA LAUGHTON MATHEWS, in presenting the annual report, said that she had concentrated in the main throughout the year on spreading interest in some of the areas which had previously had no branches of the W.G.F. Within the next few weeks, she said, they were opening a branch at Bournemouth (the first in the Southern area), at Bury St. Edmunds (second in the Eastern area), and two branches in the North Western area. They hoped to double the number of branches in the Federation this year. They had started off their annual meetings in a tiny hall, were now able to fill Caxton Hall, and no doubt would soon be spreading to the Albert Hall! During the year, the Federation had contributed over £100 to the Abbey Appeal Fund.

Dame Vera spoke about 'Youth in the Kitchen,' and said although it was a Gas Council project, many of them had shared in the organising of the competition. Miss Frith, General Secretary of the W.G.F., was secretary of the Youth in the Kitchen committee, and this was valuable from the Federation's point of view as she had made new contacts in the industry.

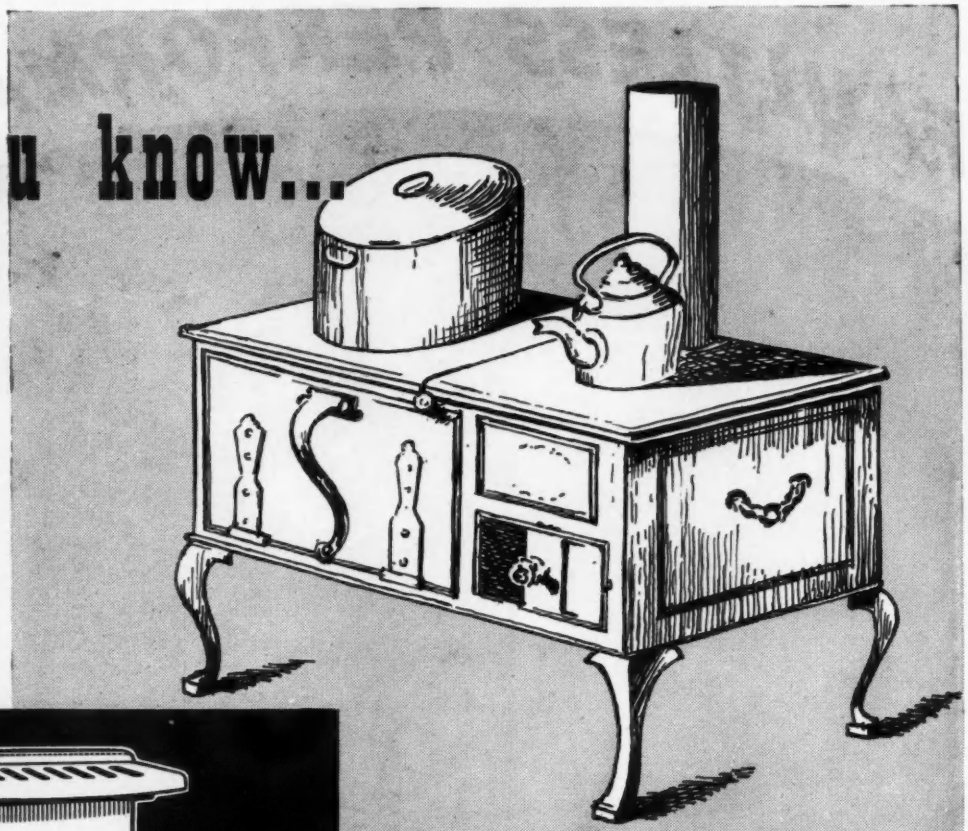
A Residential Conference

She concluded by saying that they hoped to have a residential conference at Eastbourne in April next year, and in 1956, the 21st anniversary of the Federation, we could look out for something really exciting.

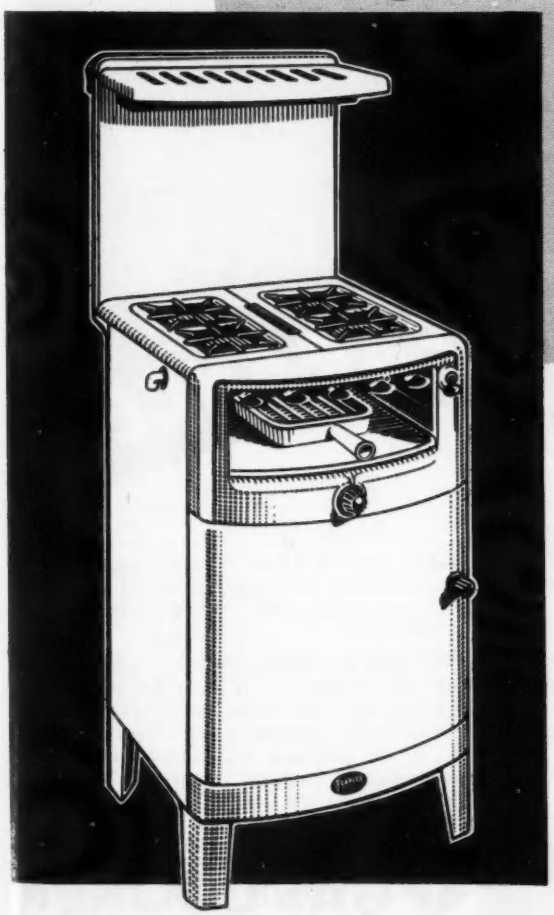
SIR HAROLD SMITH recalled that last year he had asked for their help, both as individuals and as a Federation, in making their fellow-women realise the importance of the wise and economical use of coal. He stressed that the need for coal conservation still exists, and that their help could be of great value to the gas industry. He claimed that the gas industry makes the best and fullest use of coal by treating scientifically the huge quantity it buys every year—over 27½ mill. tons—in order to produce not only those two labour-saving fuels, gas and coke, but tar and other essential products which are converted by the chemical industry into thousands of every-day articles, from nylon stockings to fertilisers, from drugs and medicines to plastics.

Sir Harold pointed out that coal is costing the industry £29 mill. a year more today than it would have done at the price levels of five years ago. In his younger days, coal was called 'black diamonds,' but he had never thought he would see the day when it really would be that. Since the war the gas industry had to pay about three times as much per ton for its coal as it did before the

Do you know...



. . . . that one of the first portable cooking stoves was manufactured by Flavels. A newspaper in the year 1859, refering to this stove, stated "*We feel bound too, to notice a most conveniently arranged portable Kitchener, mounted on legs, which can be used in any room of the house by attaching a pipe to it.*"



. . . to-day the pride of the kitchen is the Flavel '68'

This medium priced bow-front cooker has caught the attention of the observant housewife. She likes the attractive and durable finish, the larger than usual oven, and the fast efficient hot plate —Yes,there's every satisfaction in selling the '68'!

FLAVELS *of* LEAMINGTON

Makers of Fine Cooking and Heating Appliances since 1777.

FAULTLESS PERFORMANCE

FLAWLESS APPEARANCE...

As the skating star's faultless performance and flawless appearance delight her critical audience, so the faultless performance and flawless appearance of the Century Cooker delight the critical housewife . . . as the star's perfect skating is the result of years of training and practice, so the Century is the result of R. & A. Main's years of experiment and research.

Always to the forefront in improving the efficiency of the gas cooker, R. & A. Main Ltd. have been "first in the field" with many outstanding features . . . in 1922 Main introduced the simplified form of cooker construction . . . in 1927 Main were first with an all-enamelled cooker . . . and in 1935 Main introduced the first all-sheet metal cooker.

The No. 20 Cooker was the first chassis-less model to be produced and marketed in Britain, and it was also the first cooker to incorporate an oven-flue vent discharging in front of the backplate. The high efficiency and popularity of the Century has indeed proved the worth of Main's years of constant research.

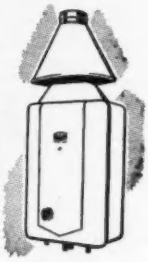
MAIN No. 20 CENTURY GAS COOKER

C3

Note the name-made by MAIN

R. & A. MAIN LIMITED
LONDON and FALKIRK

there is a MAIN water heater for every domestic purpose . . .



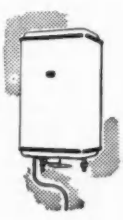
instantaneous for a complete household service . . . the M.I. Multipoint

instantaneous for the bath . . . the New Junior

instantaneous for the sink . . . the Pronto

instantaneous or storage

for a complete household service . . . the G.L.C. Circulator



storage for the sink or lavatory basin . . . the Thermain No. 2

storage for a complete household service . . . the Thermain No. 15

MAIN WATER HEATERS Ltd.
Gothic Works, Thornton Rd., Croydon, Surrey.
W5

war, but over the same period, the average price of gas had not even doubled. They had achieved this by improving the technique of the process of gas manufacture, by replacing old plant wherever possible by modern methods of gas-making, by closing down small and uneconomic gasworks, and by undertaking research on methods of gasifying coals of poorer quality.

He was glad the Federation was taking a keen interest in contemporary planning and design. By making their united voice heard on such subjects they could bring influence to bear on the makers of equipment and 'remould it nearer to their heart's desire.'

LADY BURNHAM made a bright speech on 'The Value of the Home.' She frankly admitted that she knew nothing about gas, and that her only experience of it was as a lecturer in the war in anti-gas! She cited the virtues of the ever-increasing number of labour-saving devices available, but asked the meeting just what would they do with all the resultant spare time on their hands.

The meeting concluded with a vote of thanks to the speakers proposed by the Mayor of Westminster, Alderman C. V. Russell, C.V.O., J.P.

Dear Coke Protest

Representatives of 10,000 tenants on the Bradford Corporation Thorpe Edge estate at Eccleshill are writing to the four Members of Parliament for Bradford protesting against the alleged excessive price of coke, which, they declare, is making their smokeless zone a costly place to live in. According to a statement by Mr. W. Tromans, editor of the Tenants' Association magazine, the tenants' representatives have decided to take action at a national level in order to try and get a reduction in the price of coke, which has jumped from being a very cheap commodity to one of the dearest fuels. A bag of coke costs 5s. 8d. in Bradford, having risen 8d. in six months, whereas in Leeds the cost is only 5s. 3d. The Bradford M.P.s are to be told that even though the cost of transport has increased, only a few years ago coke was a waste product and people could obtain it for nothing.

Scottish Juniors Golf Outing

The golf outing of the Scottish Junior Gas Association (Eastern District) was played over the Medal Course, Carnoustie, on May 22. A large number of members and visitors participated in the game and although no budding Ben Hogans were evident, some good scores were returned despite the fairly windy conditions. Tea was served in the Caledonian Golf Club and afterwards Mr. G. Cobb (Leven), called on Mr. W. S. Johnston, Dundee, to present the prizes. Results:

Members: 1st Prize and President's putter, J. D. T. McNaughton, Perth, 81; 2nd, J. Kinnon, Dunfermline, 82; 3rd (tied), T. Robertson, North Berwick, 84, and J. C. Macdonald, Perth, 84; Hidden Hole—Highest Score, J. Barker, Falkirk; Hidden Hole—Lowest Score, W. Y. Wilson, Dundee.

Visitors: 1st, Mr. Hendry, Dunfermline, 81; 2nd, Mr. McPherson, Carnoustie, 85; 3rd (tied), Mr. Dunsire, Leven, and Mr. Christie, Lochgelly, 86; Hidden Hole—Highest Score, Mr. W. S. Johnston, Dundee; Hidden Hole—Lowest Score, Mr. Dunsire, Leven; Consolation prize, Mr. Campbell, Montrose, 104.

SMOKELESS ZONE AT NOTTINGHAM

The Committee on Air Pollution, under the Chairmanship of Sir Hugh Beaver, visited Nottingham on May 19 and inspected the Clifton Housing Estate, a smokeless zone consisting of 2,400 houses. Each of these houses is fitted with a gas cooker, a gas wash boiler, and a gas-ignited coke grate. In the afternoon the Committee visited the Basford works of the East Midlands Gas Board to inspect the carbonising plant and coke-handling and screening arrangements, from the point of view of the production of smokeless fuels in a modern gasworks. The photograph shows an aerial view of the Clifton Housing Estate in which the smoke pall of Nottingham is seen in the background.

Compare the smoke haze over the city of Nottingham in the background of this photograph with the clear, pure atmosphere of the Clifton housing estate in the foreground. Each of the houses in the Clifton estate is fitted with a gas cooker, gas wash boiler, and a gas-ignited coke grate.

News in Brief

The Belfast Corporation Gas Committee, has been told by Mr. J. L. Hyslop, Engineer and Manager of the Gas Department, that the cost of coal will be increased by approximately £30,000 as a result of the increases in the price of coal announced recently by the National Coal Board.

Safe Driving Awards were gained by 95% of the drivers in the Sunderland Division of the Northern Gas Board last year. They were warmly congratulated by Mr. W. O. Kirkwood, Divisional General Manager, when he presented them with diplomas from the Royal Society for the Prevention of Accidents. In all, 27 drivers had been awarded certificates for clean records—a most satisfactory result—commented Mr. Kirkwood, speaking at a ceremony at the Divisional offices.

While Attending the Gas Coucil's 3rd annual Sales and Service Conference at Southport, Miss Lovell Burgess, the Gas Council's Lectures Officer, well-known journalist and writer, lectured on 'Modern Large-Scale Catering'—with the co-operation of the North Western and North Eastern Gas Boards—to catering students at the Royal Technical College, Salford; Bolton Education Committee's Women's Institute; and the Leeds College of Technology. Over 40 heads of catering departments at technical colleges throughout the country have made application for this Gas Council lecture to be given to their trainees.

Newtownards Borough Council recently staged an exhibition of modern gas appliances. The opening ceremony was performed by the Mayor (Alderman H. M. Donaldson, J.P.) assisted by Councillor J. White, Chairman of the Council's Gas Committee. The exhibition was the first held in Newtownwards since 1951, and on view was a wide range of the latest gas cookers, fires, radiators, water heaters, and washing machines. Twice daily cookery demonstrations were given by Miss Janeway, of the Parkinson Stove Co., whose Northern Ireland Manager, Mr. F. C. Clegg, was also present.

The Caterers' Association of Great Britain has just held its annual conference at Cardiff. At the same time the Wales Gas Board organised an exhibition of catering equipment at the St. John Square showrooms, and members of the Executive Committee of the Association were entertained prior to the opening of the conference. The showroom also staged an exhibition on behalf of the Welsh Tourist and Holidays Board to commemorate the centenary of the historic tour through Wales of George Borrow, out of which emerged one of the great classics of English literature, 'Wild Wales'. Among those present at the reception were Mr. E. Vivian Rogers, Chairman, Caterers' Association of Great Britain, the Lord Mayor and Lady Mayoress of Cardiff (Sir James and Lady Collins), and Sir Robert Webber, J.P. (Managing Director, Western Mail and Echo, Ltd.).

JOHN BOOTH & SONS (BOLTON) LTD., HULTON STEELWORKS, BOLTON

Telephone : Bolton 1195 LONDON : 26 VICTORIA STREET, WESTMINSTER, S.W.1 *Telephone : ABBey 7162*

ALCON PACKLESS Control SOLENOID VALVES

★ Product of 25 years experience in the design and construction of Solenoid Valves . . .

TYPE A.C.

Give 100% shut-off

Packless—no glands—less friction. Noiseless—and positive in action. Withstand pressures up to 300 lb. per sq. in. Have non-corrosive magnetic system—and operate direct from AC mains.

Also available with manual re-set.

Write for literature to :

ALEXANDER CONTROLS LTD.

141 WOOD END LANE, ERDINGTON, BIRMINGHAM 24. Phone: ERDington 2485/6

EWART CHAINBELT CO., LTD.
DERBY, ENGLAND
Driving and Conveyor Chains of the best quality; made of Ley's Celebrated Blackheart Malleable Iron.
ALSO COMPLETE CONVEYORS AND ELEVATORS

CASES FOR BINDING
Quarterly Volumes of the 'Gas Journal'
7/6 each, post free
Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C.4.

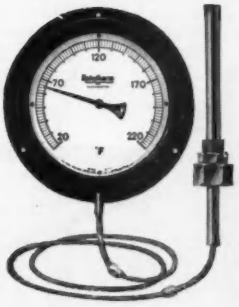
THOMAS BUGDEN & CO.
India-Rubber and Airproof Manufacturers and General Contractors.
LARGEST MANUFACTURERS OF GAS MAIN BAGS.
Telegrams—"AIRPROOF, BARB, LONDON." Telephone—6147 CLERKENWELL
Contractors to H.M. Government

Gas Bags for Repairing Mains
PATENTEES OF THE
DENMAR BAG
Impervious to Main Liquor and Climatic Influences.

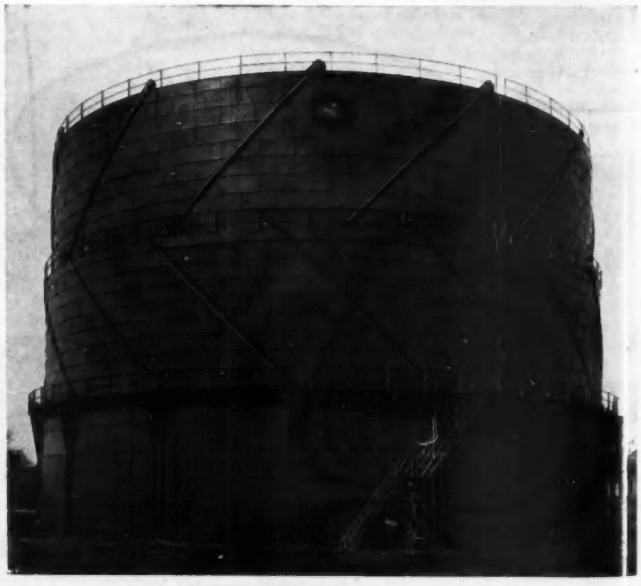
Round or Cylinder Shape.

Pull-through and Expanding MAIN STOPPERS.
All types of INDIA-RUBBER BOOTS.
DRAIN RODS AND WHALE-BONE BRUSHES.
HOSE AND TUBING FOR ALL PURPOSES.

Stokers' Mitts and Gloves of every description.
Contractors' & Miners' Woollen Jackets, Trousers, Hats, &c.
244, Goswell Road, LONDON, E.C.1.

to indicate, record or control temperature

DISTANT READING THERMOMETER
Mercury-in-Steel

Rototherm
DIAL THERMOMETERS
BI-METAL MERCURY-IN-STEEL & VAPOUR PRESSURE
THE BRITISH ROTOTHERM CO. LTD.
Merton Abbey, London, S.W.19. Phone: LIBerty 7661

for HIGH PRESSURE, COLUMN GUIDED
GASHOLDERS
RIVETTED OR WELDED
BLAKELEYS
Consult
FIRTH BLAKELEY SONS & CO LTD
CHURCH FENTON, YORKS
Telephone: BARKSTON ASH 234/5


Bind your JOURNAL each week

Gold lettered on the spine complete with instruction sheet.

No loose copies to be mislaid

We offer Journal readers a simple method of temporarily binding their copies as received week by week. No time lost searching for a particular issue; Journals removed and replaced in a few seconds. Designed to hold 13 issues, and whether completely or only partially filled the book effect is always maintained.

Price 12/6 each plus 9d. postage.

Obtainable from:

WALTER KING, Ltd., 11, Bolt Court, Fleet St., London, E.C.4

PUBLISHERS' NOTICE

The " Gas Journal " is published every Wednesday, price 1/3d.; by post 1/5d.

Subscription Rates: Home and Empire:—52/- per annum; Foreign:—60/- per annum. (Both payable in advance.) A copy of the " Gas Journal " Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words)—minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep × 7" wide; block screen 120.

BUSINESS MANAGER : S. T. CULLEN

MIDLANDS MANAGER: G. B. Torrance, 42, Wychall Lane, King's Norton, Birmingham, 30.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. *'Phone:* Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: CENtral 2236-7. *Telegrams:* Gasking, Fleet, London.

OXIDE

DUTCH AND DANISH BOG ORE
SPECIALLY ACTIVATED OXIDE OF IRON

Oxide supplied on loan or sale outright.
Highest prices paid for Spent Oxide.

Send your enquiries to

GAS PURIFICATION & CHEMICAL COMPANY LIMITED
ESTABLISHED 1873
PALMERSTON HOUSE, OLD BROAD STREET, LONDON, E.C.2.

Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

FIRE!

AT 25, PICCADILLY, W.1

NU-SWIFT!

Not yet visited the new Nu-Swift Fire Protection Centre? Call when you're next in the West End. You'll be very welcome!

Nu-Swift Ltd., 25 Piccadilly, W.1. REGent 5724

In Every Ship of the Royal Navy

"KLEENOFF" *

THE COOKER CLEANER

"KLEENOFF"

FIBRE BRUSHES
RUBBER MOPS

"KAY-DEE" *

KETTLE DESCALER

For resale to the public, and in bulk for Works use.

BALE & CHURCH, LTD.
7, CROMPTON WAY, CRAWLEY, SUSSEX

APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

INTELLIGENT GENERAL FOREMAN required by Chemical Engineers to supervise Contractors' Building and Civil Engineering Work on Gas Works and Chemical Works projects. Good salary offered. Apply in first instance, with full details of experience, and age to No. 200, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

LANCASHIRE Manufacturers of Gas-heated Wash Boilers and Washing Machines require experienced Representative resident in Lancashire or Yorkshire, to cover the North Western and North Eastern Gas Board Areas. Applicants should state age, qualifications, experience and salary required and be able to submit highest references. All applications will be treated in strictest confidence. Apply: No. 201, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

WEST MIDLANDS GAS BOARD

WOLVERHAMPTON AND DISTRICT DIVISION
WOLVERHAMPTON DISTRICT
SHIFT ENGINEER

CANDIDATES should have practical experience of the control and working of Woodall-Duckham Vertical Retorts and Automatic C.W.G. Plants, and be capable of supervising general Gas Works Plant operation.

The salary for the post will be within Grade VII (£565-£645 per annum) of the National Salary Scales for Gas Staffs.

The post is pensionable and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with details of present and previous appointments and the names of two referees, should be addressed to Mr. Stanley Jones, Divisional General Manager, West Midlands Gas Board, Wolverhampton and District Division, Kensington House, Bath Street, Dudley, to reach him within fifteen days of the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

WEST MIDLANDS GAS BOARD

SHROPSHIRE DIVISION
GROUP DISTRIBUTION SUPERINTENDENT

APPLICATIONS are invited for the above post, which is based at Wellington.

A sound practical experience in mains and service laying and both high and low pressure distribution is necessary, and the successful candidate will be required to organise an efficient distributing service within the Group.

The possession of the Institution of Gas Engineers Higher Grade Certificate in Gas Engineering (Supply) will be an advantage.

The salary will be within Grade IX (£635-£735 per annum) of the National Salary Scales for Gas Staffs.

The post is pensionable and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names of two referees, should be addressed to Mr. W. Oldham, Divisional General Manager, West Midlands Gas Board, Shropshire Division, Sidney House, School Court, Shrewsbury, to reach him within fifteen days of the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

ASSISTANT CHEMIST (aged 20-30) required for testing and development work on domestic gas appliances. Salary will be in accordance with experience. Apply, stating qualifications and salary required to—General Gas Appliances Ltd., Corporation Road, Audenshaw, Manchester.

NORTH WESTERN GAS BOARD

DEPUTY CONTROLLER—
PHYSICAL TESTING LABORATORIES,
BLOOM STREET, SALFORD

APPLICATIONS are invited for the above pensionable appointment in Headquarters' Sales and Service Division at a salary of £1,000 per annum.

Candidates should be graduates in Physics, Chemistry or Fuel Technology, and should be experienced in domestic fuel utilisation.

The successful applicant will be required to supervise the examination and testing of all types of gas and coke appliances for domestic use; he should also have had experience in the assessment of coke qualities.

Detailed applications, giving the names of two referees, should reach the Secretary, North Western Gas Board, 60, Whitworth Street, Manchester, 1, within fourteen days.

SCOTTISH GAS BOARD

GLASGOW DIVISION
GLASGOW DISTRICT

A CHEMIST is required by the Chemical By-product Section of the above undertaking.

Applicants should be qualified B.Sc., A.R.I.C., A.M.I.Chem.E., Senior National Certificate, or other similar qualification, and should have some industrial experience.

The salary will be within the grades Prov. 'A'—A.P.T. VII-IX (£565-£735) with placing according to qualifications and experience.

The successful applicant may be required to pass a medical examination and subscribe to the Board's Superannuation Scheme.

Applications, endorsed "Chemist," giving full details of training and experience, together with the names and addresses of two referees, should be in the hands of the undersigned at 30 John Street, Glasgow C.1, within fourteen days of publication of this advertisement.

D. F. YOUNG,
Divisional Controller.

May 28, 1954.

CONTRACTS OPEN

OXFORD CITY COUNCIL

INSTALLATION OF
WATER AND GAS MAINS
CONTRACT No. 12

TENDERS are invited for the above Contract from Contractors experienced in the laying of large cast iron and steel mains for water and gas.

The contract covers the laying of approximately 6,000 lineal yards of 24 in. dia. spun iron water main from Lake Street to Brasenose Reservoir and of approximately 7,200 lineal yards of 24 in. diameter spun iron gas main from Oxford Gas Works to Cowley, with ancillary works to both mains. For a distance of 2,755 yards the two mains will be laid in a common trench, and steel mains will be laid at two river crossings.

Contract documents can be obtained from the City Water Engineer, 65 St. Aldate's, Oxford, on payment of Five Guineas, which will be returned on receipt of a bona-fide tender.

Sealed Tenders must be returned to reach the undersigned by 10.00 a.m. on Thursday, July 1, 1954.

The Council does not undertake to accept the lowest or any tender.

H. PLOWMAN,
Town Clerk.

Town Hall,
Oxford.

PLANT, &c. WANTED

WANTED—Recovered or used Mercury from 14s. lb. delivered, according to quantity: or cash on collection arranged Greater London area: also precious and non-ferrous scrap metals, and in all forms. Belgrave Buyers (G.J.), 5, Belgrave Gardens, London, N.W.8. MAI 7513.

AGENCY

AGENTS required for sale of Syphon Pots, Surface Boxes, etc.; good commissions. Apply: No. 197, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

PATENTS

KINGS PATENT AGENCY, LTD
(Director, B. T. King, A.I.M.E., Patent Agency)
Advice, Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. 'Phone: City 6161.

MISCELLANEOUS

SMALL single truckloads and larger quantities of good ROUGH BREEZE from any gasworks, large or small, in the United Kingdom required by merchants paying own railway tolls. Cash price and particulars to: No. 9378, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

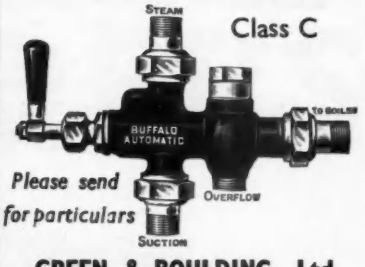
STEREO AIDS EDUCATION

in that it is a more dynamic presentation than any other of following step by step the erection of complicated plant. District Gas Education Committees are urged to make further enquiries to

Walter King Photography,

11, Bolt Court, Fleet Street, E.C.4
CEN 2236

BUFFALO INJECTORS



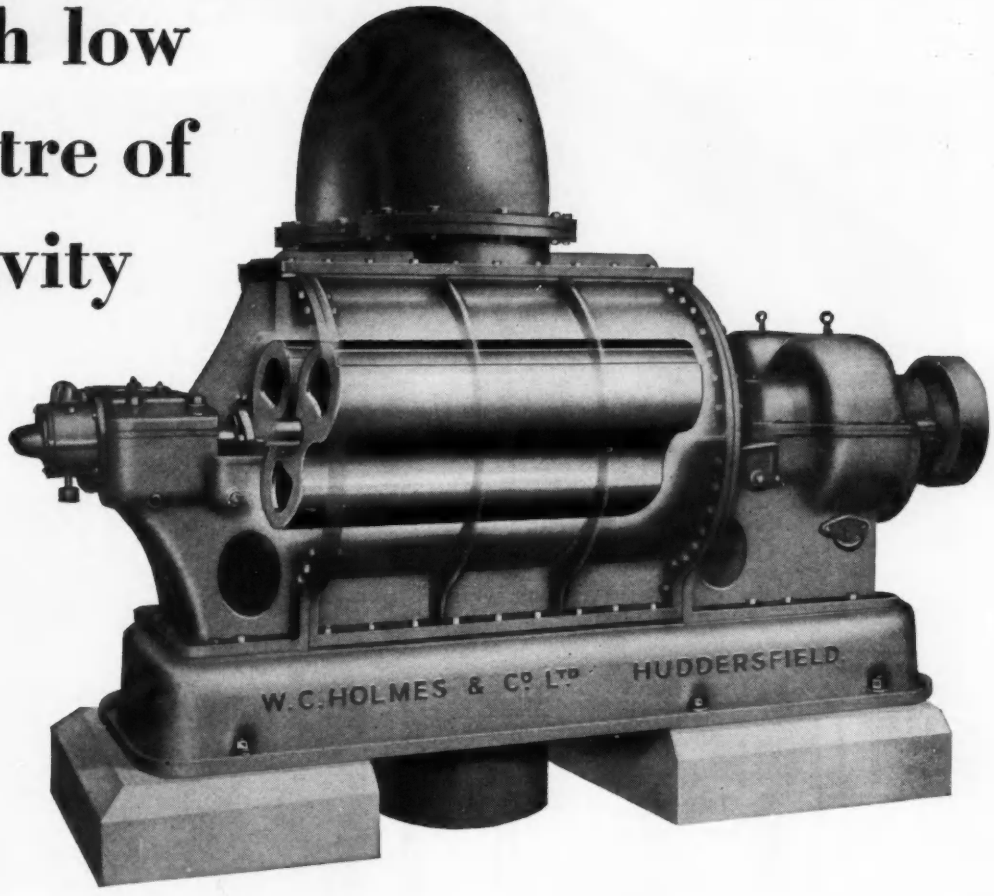
Please send for particulars

GREEN & BOULDING, Ltd.
162a Dalston Lane, London, E.8

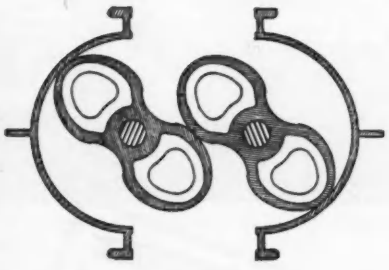
WESTWOOD & WRIGHTS
LIMITED
BRIERLEY HILL, STAFFS.
GASHOLDERS · PURIFIERS · WASHERS
CONDENSERS · CASTINGS · STEELWORK
GAS VALVES · WELDED PIPES

MAXIMUM STABILITY

with low centre of gravity



maximum stability



and efficiency are assured in the re-designed Holmes-Connersville exhauster. The upward gas delivery results in the downward thrust being carried the shortest distance to the bedplate. The gas inlet is conveniently arranged under the machine with outlet on top permitting easy internal inspection.

HOLMES-CONNERSVILLE EXHAUSTERS AND BOOSTERS

W. C. HOLMES & CO. LTD., HUDDERSFIELD

Tel: Huddersfield 5280 London: Victoria 9971 Birmingham: Midland 6830

C 4018

we serve to burn

"Fishtail" type burner *with two-armed stamped pattern injector for heating liquid in tanks by submerged horizontal combustion tubes. For use with low pressure gas supplies.*
Size Range: *1", 1¼", 1½", 2" and 2½" outlets.*
Capacity Range: *45-280 cu. ft. of gas per hour.*

Note.—These four burner heads are for high pressure gas or low pressure gas and air blast.

Brass non-blow-off head types: *deal with 5 to 10 cu. ft. of gas per hour.*

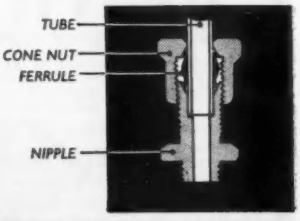
Stainless steel, "F" type head, burner: *deals with 8 cu. ft. of gas per hour.*

Perforated head type burner: *deals with 10 or 15 cu. ft. of gas per hour.*

Type 2 Mixture Controller, *for controlling quality of air/gas mixture irrespective of varying pressures and resistances. Temperature control is varied by manipulation of the air cock only.*
Capacity Range: *from 130 to 1380 cu. ft. of gas per hour according to air pressure (¼ lb. to 1lb.) and size. For low pressure gas systems.*
Air Inlets: *1", 1¼", 1½" and 2" diameters gas thread.*

DID YOU KNOW?

KEITH BLACKMAN have been making compression joints for many years and the present design embodies features developed as a result of this long experience. Notice that the shape of the ferrule is such that the joint is made without unduly stressing the tube.



INDUSTRIAL GAS EQUIPMENT

Keith Blackman LIMITED

MILL MEAD ROAD, TOTTENHAM, LONDON, N.17

'Phone: Tottenham 4522 (twelve lines) 'Grams: "Keithblac, Norphone, London."

BRANCH OFFICES: AT MANCHESTER, BIRMINGHAM, LEEDS, GLASGOW, NEWCASTLE-ON-TYNE, PENARTH near CARDIFF, AND BELFAST

510

TRADE MARK

RUSSELL BROS (WALSALL) LIMITED

BRADFORD TUBE WORKS · WALSALL · ENGLAND

The Bradford Tube Works occupies a factory area of some three acres exclusively devoted to the manufacture of Steel Tubes and Fittings.

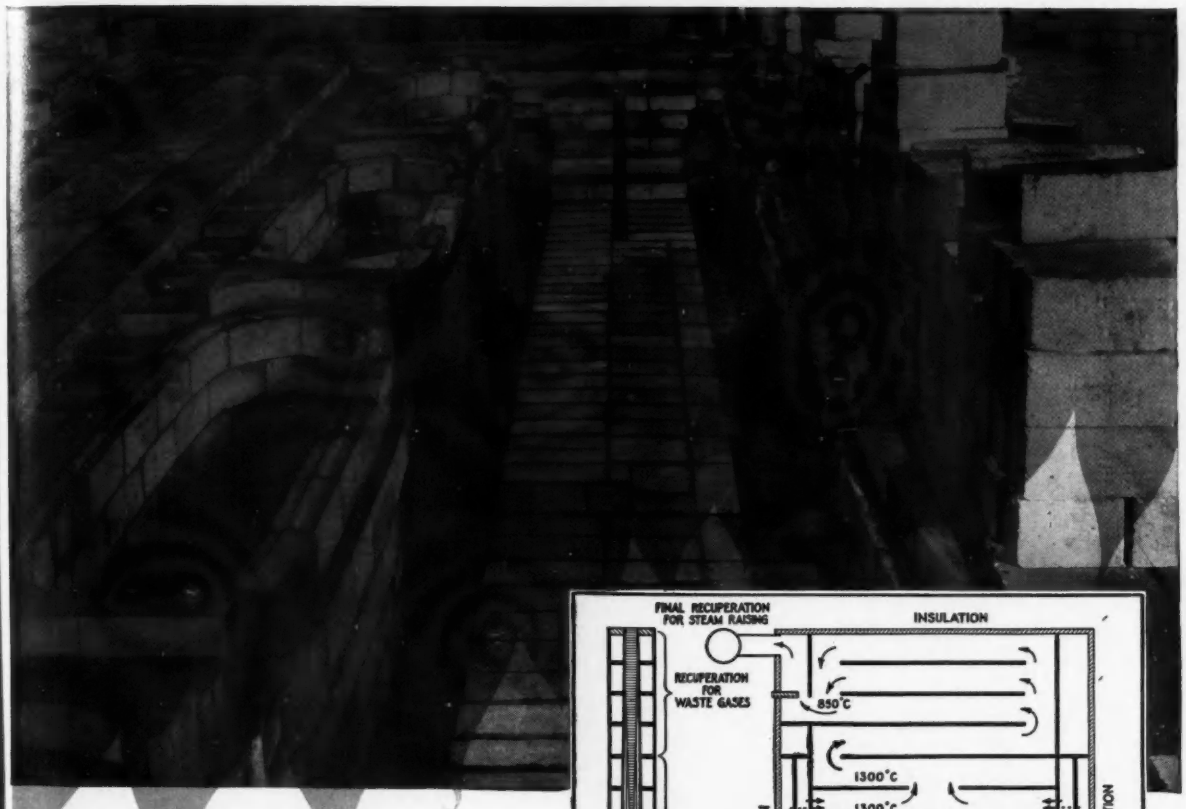
Contractors to Admiralty and War Office. Extensive stocks.

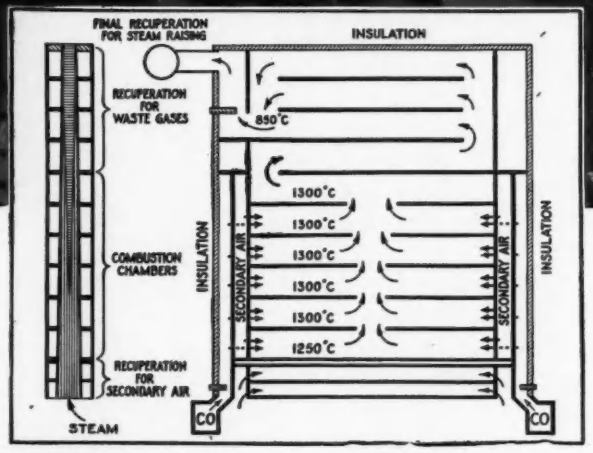
SM/RB 1008/2

Registered as a Newspaper. Printed by STRAKER BROTHERS LTD., E.C.2 for WALTER KING LIMITED, 11, BOLT COURT, FLEET ST., LONDON, E.C.4, Wednesday, June 2, 195

"Balanced Heating"

MEANS ECONOMICAL GAS—MAKING





Great reductions in the amount of fuel required for the carbonization process have been recorded in the "Balanced Heated" settings of the Glover-West continuous vertical system.

This is due to two main factors. The retorts are heated by *primary* combustion of producer gas which enters the combustion chambers at *both* sides of the setting. Even heating of the retorts ensures maximum utilization of heat and eliminates high local temperatures and fuel wastage.

In addition, improved control of individual combustion chamber temperatures ensures maximum gas production from all coals.

* *Illustration shows a "Balanced Heated" setting under construction.*

West's Gas
IMPROVEMENT CO. LTD.

ALBION IRONWORKS · MILES PLATTING · MANCHESTER 10

Telephone: COLlyhurst 2961. Telegrams: Stoker, Manchester.

London Office: Columbia House, Aldwych, W.C.2. Phone: HOLborn 4108-9 Grams: Wesgasco, Estrand.

Piling

A recent piling contract in progress near London.

and

Construction

56,000 gal. reinforced concrete water tower constructed at Reading Gasworks.

by West's

Piling & Construction Co. Ltd.

Specialists in

WEST'S SHELL PILING.
FOUNDATIONS.
DESIGN & CONSTRUCTION IN REINFORCED CONCRETE.

Head Office: Columbia House, Aldwych, London, W.C.2 — Telephone: Holborn 4108
Plant Depot: Bath Road, Harmondsworth, Middlesex — Telephone: West Drayton 2288
Midland Office: 83 Edmund St., Birmingham 3 — Telephone: Central 1416
Northern Office: Albion Ironworks, Manchester, 10 — Telephone: Collyhurst 3049
Scottish Office: 169 Hamilton Road, Glasgow — Telephone: Shettleston 2927